

BID SOLICITATION NOTICE

TO RECEIVE A BID PACKAGE, BIDDER MAY EITHER DOWNLOAD THE BID FROM THE AUTHORITY'S WEBSITE AT <http://www.state.nj.us/turnpike/purchasing.html> OR REQUEST A BID BY COMPLETING THIS FORM AND FAXING IT TO THE NUMBER STATED BELOW FOR RECORD KEEPING PURPOSES. WE REQUEST THAT THE BIDDER COMPLETE THIS FORM AND RETURN TO US, EVEN WHEN BIDDER IS DOWNLOADING THE BID. THIS IS THE ONLY NOTICE OF BIDDING FOR THE FOLLOWING GOODS / SERVICES YOU WILL RECEIVE.

THE NEW JERSEY TURNPIKE AUTHORITY PURCHASING DEPARTMENT

P.O. Box 5042
Woodbridge, New Jersey 07095-5042
or
New Jersey Turnpike Administrative Offices
581 Main Street
Woodbridge, New Jersey 07095-5042
Tel. - 732-750-5300
Fax - 732-750-5399

INVITATION TO BID

TITLE: **TANDEM DUMP TRUCKS**

BID NO: **R-93129**

DUE DATE: **06/20/2012**

TIME: **11:00 A.M.**

SUBMIT BIDS BEFORE THE DUE DATE AND TIME TO THE ABOVE ADDRESS

BIDDER INFORMATION (PLEASE PRINT)

NAME OF BIDDING ENTITY

ADDRESS

CITY, STATE AND ZIP CODE

E-MAIL ADDRESS

REPRESENTATIVE TO CONTACT-NAME & TITLE

TELEPHONE NO.

FEDERAL TAX I.D. NO. or TAXPAYER I.D. NO.

FAX NO

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BUSINESS CORPORATION PARTNERSHIP INDIVIDUAL

OTHER (SPECIFY):

BIDDER GUIDELINES/CHECKLIST

PURSUANT TO N.J.S.A. 27:23-6.1 AND N.J.A.C. 19:9-2.1 et seq. BID PROPOSALS WHICH FAIL TO CONFORM TO THE FOLLOWING REQUIREMENTS MAY BE REJECTED:

1. Bid proposals must be received at or before the public opening time stated on the cover page at the following place: New Jersey Turnpike Authority, Administration Building, 581 Main Street, Woodbridge, New Jersey 07095. Telephone or Facsimile proposals will not be accepted. The accompanying self-addressed envelope should contain or be attached to the bid proposal.
2. The bid proposal must include all price information. Proposal prices shall include delivery of all items F.O.B. destination or as otherwise provided. Price quotes must be firm through issuance of contract.
3. All bid proposal prices must be typed or written in ink. Quote the specified unit of measure. If bidding an alternate, provide detailed specifications.
4. All corrections, white-outs, erasures, re-striking of type, or other forms of alteration or the appearance of alteration, to unit and/or total prices must be initialed in ink by the bidder.
5. The bidder must attend the mandatory site inspection at the following date(s) and time(s) if applicable:
6. **See the Authority's Instructions to Bidders for a complete list of the Authority's standard contract Terms and Conditions, as well as REQUIRED FORMS that must be included with the bid proposal or the bid will be rejected. (SEE ATTACHED)**

Have you included the following documents?

- (a) State of New Jersey Division of Revenue Business Registration Certificate(s)
 - (b) Certification of Registration with the Secretary of State (only if a foreign (non-NJ) corporation)
 - (c) Acknowledgement of Requirement for Disclosure of Political Contributions (ELEC)
 - (d) Public Works Contractor Registration Certificate(s) (if applicable)
 - (e) Affirmative Action Information Sheet with Certificate or Form AA302
 - (f) Signed Mandatory Equal Employment Opportunity Language
 - (g) SBE/WBE/MBE Certificates and Form
 - (h) Vendor Disclosure Form (EO129 - Location of Services)
 - (i) Notice of Set-Off for State Tax (P.L. 1999, c.159)
 - (j) Automobile Waiver
 - (k) Insurance Requirement
7. **This Request for Bids requires the following Mandatory Documents or the bid will be rejected:**
- Bid Bond and/or Letter of Surety, Cashiers Check Requirement
Stockholder/Partnership Disclosure Statement
8. Bidder must sign the Bid
 9. Contract Bond Requirement for successful bidder – Full amount of contract

REQUEST FOR BIDS
THIS IS NOT AN ORDER

DATE OF REQUEST: May 31, 2012

Sealed Bids R-93129 will be received at the New Jersey Turnpike Authority Administrative Offices, 581 Main St., Woodbridge, New Jersey, as stated on the cover page at which time and place said proposal will be publicly opened and read. Bidders mailing Bids should allow for their normal mail delivery time to ensure timely receipt of their Public Bids. Please be advised that using overnight / next-day delivery service does not guarantee overnight/next-day deliveries to our location. The Authority will not be responsible for any bid not being received by the required date and time.

INTENTION

It is the intention of the Authority to issue a Price Agreement for the purchase of **TANDEM DUMP TRUCKS**. Items purchased under this Agreement will be delivered as directed by the Authority. The term of the contract shall be for one year with the option to extend for two additional one-year terms at the Authority's discretion and Vendor's concurrence. Please contact Christine Noble with any questions regarding this procurement contract at 732-750-5300 X 8623 or noble@turnpike.state.nj.us.

BID SHEET INSTRUCTIONS

Prospective Bidders should follow all instructions in this Request for Bids and in the standard Instructions to Bidders issued by the Authority, and any other documents issued by the Authority in connection with this Request for Bids (collectively, "Bid Documents"). Prospective Bidders must examine the Bid Documents carefully before bidding and must ask the Director of Purchasing in writing for any interpretation or correction of any apparent ambiguity, inconsistency or apparent error therein. Any written request for interpretation or correction shall be directed to the Director of Purchasing. Written requests can be submitted by FAX at 732-750-5399. If necessary, an interpretation or correction shall be issued by the Director of Purchasing as an Addendum and FAXED to prospective Bidders who have obtained the Bid Documents. Upon the issuing of an Addendum, the content of the Addendum shall become part of the Bid Documents. **Requests for interpretation or correction shall be considered only if received at least 5 business days prior to the bid opening date.**

Only written interpretations or corrections issued by the Director of Purchasing by Addendum shall be binding.

The submission of the Bid is conclusive evidence that the Bidder is fully aware of the conditions, requirements, and details as stated in the Bid Documents. If the Bidder, prior to submitting its Bid, fails to notify the Director of Purchasing of the existence of an ambiguity, inconsistency in the Bid Documents, a Bid will conclusively be presumed to have been based upon the interpretation of such ambiguity or inconsistency.

All erasures, interpolations or other physical changes on the Bid form shall be signed or initialed by the bidder. Bids containing any conditions, omissions, erasures, alterations, or items not called for in this Request for Bids, or irregularities of any kind, may be rejected by the Authority, in its sole discretion, as being incomplete. The bidders shall not attach conditions, limitations or provisos to their Bid, except in cases where "Exceptions" are permitted.

The Authority will accept Approved Equivalent items on this bid. If a bidder is basing the proposal on items other than what is specified, and wishes the items he proposes to be considered as an "Approved Equivalent," the Bidder shall enter a price on the bid sheet then submit on the Exception Sheet in the exact format of the line item on the Request for Bids contained herein, the item number, an item description, including manufacturers name, model number, and packaging quantities of those Items which the Bidder proposes to substitute.

Bidders must supply a price for every item listed. Bids not having a price in all listed items may be rejected. The bid will be awarded to the vendor who supplies the lowest total cost for ALL items as listed in the bid.

Bidders must quote only one price per line item. If a bidder quotes multiple prices per line item, the bid proposal may be rejected.

The Authority will purchase amounts of any given item as needed, at the sole discretion of the Authority and shall not be bound by any quantities listed. The Authority reserves the right to make reasonable increases to line item quantities. All items are to be bid FOB Destination. All shipping, handling, and other costs should be considered in the bid price.

Award will be made to the lowest, responsible bidder for the total items bid.

REQUEST FOR BIDS

MATERIAL AND SERVICE DESCRIPTION

ITEM	QUAN.	UNIT OF MEAS.	DESCRIPTION	UNIT PRICE	TOTAL DOLLAR AMOUNT
1	3	Each	Tandem Dump Trucks as per attached specifications or approved equivalent.	\$	\$

**ANY INQUIRIES CONCERNING THIS BID MUST BE SENT VIA FAX NO LATER THAN
FIVE (5) BUSINESS DAYS BEFORE BID OPENING**

DELIVERY DATE _____, to sites as specified in the bid specifications.
Discount Terms Based On Net 30 Days Only.

NEW JERSEY TURNPIKE AUTHORITY

AUTHORIZED SIGNATURE

Name of Company and / Authorized Signature of Bidder

SIGNATURE PAGE

ADDENDA / INQUIRIES: COMPLETE (if applicable) BEFORE SUBMITTING BID:

Receipt of Addendum / Inquiries # _____ dated _____ is hereby acknowledged.

Receipt of Addendum / Inquiries # _____ dated _____ is hereby acknowledged.

☐

CHECK BOX IF NO ADDENDA/INQUIRY ISSUED

(All Addenda / Inquiries must be acknowledged as indicated above.)

BID IRREVOCABLE: This offer shall be irrevocable for ninety (90) working days after the date on which the Authority publicly opens this bid except in those instances where an unsuccessful bidder has filed a Protest pursuant to N.J.A.C. 19:9-2.12. Upon notification of a Protest, Bidders are required to hold their prices for an additional 90 days. All bidders will be notified in writing of the action taken by the Authority.

OFFER/CERTIFICATION: The undersigned offers and agrees to furnish to the New Jersey Turnpike Authority the services and/or materials in compliance with all terms, conditions, specifications and addenda of the RFB, Bid Documents, and resulting contract. The undersigned further certifies understanding and compliance with the requirements of the standard terms and conditions as stated in the Instructions to Bidders included with the Bid Documents. The undersigned certifies that he or she executes this bid with full authority so to do; and that all statements contained in this bid and in this certification are true and correct, and made with full knowledge that the Authority relies upon the truth of the statements contained herein and in any statements requested by the Authority showing evidence of qualifications in awarding the contract.

I certify that the foregoing statements made by me are true. I am aware that if any of the foregoing statements made by me are willfully false, I am subject to punishment.

AUTHORIZED SIGNATURE: _____

Print Name and Title: _____

Bidding Entity: _____

Address: _____

City, State, Zip: _____

Telephone #: _____ Fax: _____

Date: # _____

NEW JERSEY TURNPIKE AUTHORITY

NO RESPONSE BID SURVEY

BID REQUISITION NUMBER: R-93129

PROPOSAL TITLE: TANDEM DUMP TRUCKS

If you do not choose to respond to this Bid, please complete the form below:

Name of Company_____

Reason you did not respond (Check all that apply)

- _____ Cannot supply product or service
- _____ Cannot meet technical specifications
- _____ Cannot meet delivery specifications
- _____ Cannot meet legal requirements
(i.e. bid/performance/security/insurance, etc.)
- _____ Cannot provide a competitive price at this time
- _____ Interested in receiving specifications for informational purposes only.
- _____ Insufficient lead time to respond
- _____ Other:(please be specific)

Do you wish to remain on our mailing list?

_____Yes _____No

Additional comments: _____

Signed :(optional)_____

Company:_____

ADDITIONAL YEARS PURCHASING OPTION

R-93129

3- Year Open End Option: The Authority shall have the option for one (1) Model Year* from the date of Contract, to order additional units conforming to the requirements of these specifications at the same price and under the same terms and conditions as those required herein.

The Authority shall further have the option to purchase additional units conforming to these specifications for two (2) additional Model Years. Any unit(s) offered during the two (2) subsequent Model Years shall be of the model equivalent to that specified herein. In the latter instances, if there have been any price changes in the two subsequent Model Years, the vendor shall submit a request to the Authority covering the aforesaid price changes, and shall include appropriate explanation and justification for any such price changes.

Any such request for price adjustment shall be in writing and directed to the Director, Purchasing Department and shall be accompanied by the following evidence as a basis for your request;

1. The published price lists for equipment, which were in effect at the time of your original proposal.
2. The equivalent published price lists in effect at the time of your request.
3. Any additional evidence which the Authority deems necessary in the evaluation of your request.

The Authority shall, within its sole discretion, have the right to accept the price changes proposed by the vendor or if it so desires re-bid the requirement.

*Model Year is defined as the Model Year of the Manufacturer of the unit(s) offered by you in this Request For Quotation. In that instance where proposals are for equipment for which "Model Year" and "Production Cut-Off Dates" are undefined or non-existent, the "Model Year" is defined, for bid purposes, as one calendar year from the date on which the Contract is accepted. The last date on which orders may be placed for the Model currently in effect is _____

**CERTIFICATION AND REQUEST FOR WAIVER
OF THE COMPREHENSIVE AUTOMOBILE LIABILITY
INSURANCE REQUIREMENT**

Purchase Requisition # R-93129

I hereby request an exemption from the New Jersey Turnpike Authority's Comprehensive Automobile Liability Insurance policy requirement for the above-referenced Purchase Requisition. I certify that if the bidder referenced below is the successful low bidder (hereinafter "Awardee"), the Awardee will utilize a recognized, commercial third party shipper (i.e. UPS, Federal Express, DHL, U.S. Postal Service, Air Borne Express, etc.) to deliver all Goods to the New Jersey Turnpike Authority. By signing this certification, a representation is made that no vehicle either owned, rented or leased by the Awardee will be used for the delivery of any goods to the New Jersey Turnpike Authority, and that any delivery made will be restricted to the use of third parties providing package delivery service in the ordinary course of business. Accordingly, a waiver of the Comprehensive Automobile Liability Insurance requirement is hereby requested.

Bidder

By: _____

Print Name: _____

Title

Date

\$2MM WAIVER

NEW JERSEY TURNPIKE AUTHORITY

GENERAL INSTRUCTIONS AND SPECIFICATIONS FOR: TANDEM AXLE TRUCK WITH 13 CUBIC YARD DUMP BODY AND ACCESSORIES

Quantity	Description	Maximum Delivery Date
3	66,000 lbs. GVWR Conventional Cab & Chassis Equipped with 13 Cubic Yard Stainless Steel Dump Body, Tailgate Spreader, Snowplow Hitch, 11' Power Reversing Snowplow and Accessories	240 Days After Receipt of Order

SPECIFICATIONS: Specifications covering purchase of unit above are as follows:

TDTC-2013 TANDEM DUMP TRUCK CHASSIS
DB-2013 THIRTEEN CUBIC YARD STAINLESS STEEL DUMP BODY
CHS-2013 CENTRAL HYDRAULIC SYSTEM
TS-2013 TAILGATE SPREADER
RL-ROTATOR LIGHTS
SPL-2013 SNOW PLOW LIGHTS
SPH-2013 SNOW PLOW HITCH
SP-2013 SNOW PLOW
7PTC 7-POLE CONNECTOR

COMPLIANCE WITH RULES AND REGULATIONS: The unit and associated equipment furnished must comply with all Federal and State Motor Vehicle Safety Laws and Regulations and shall be capable of passing the New Jersey State Motor Vehicle Inspection Laws, where applicable.

ENERGY STAR REQUIREMENTS: If applicable for items specified in bid package, the vendor must provide products that earn ENERGY STAR and meet the ENERGY STAR specifications for energy efficiency. The vendor is encouraged to visit energystar.gov for complete product specifications and updated lists of qualifying products. The ENERGY STAR label must also be affixed to each delivered item. The bidder's signature on the signature page certifies that items so indicated that have earned ENERGY STAR and meet the ENERGY STAR specifications or other standards for energy efficiency will be supplied.

ERRORS AND OMISSIONS: Inadvertent omissions or errors in the attached specifications must be brought to the attention of the New Jersey Turnpike Authority's Director of Purchasing at 732-750-5300 before bid submission date. If the bidder discovers any errors or omissions in the work undertaken and executed by them, they shall also immediately notify Peter Perperas (Project Supervisor) at 732-442-8600 ext. 2868 who shall promptly verify the same. If, with

knowledge of such error or omission and prior to the correction thereof, the bidder proceeds with any work affected hereby, they shall do so at their own risk and the work so done shall not be considered as work done under and in performance of this Agreement unless and until approved and accepted.

PILOT MODEL: Questions, which arise before or during the preparation of the pilot model, shall be addressed in writing via e-mail from the vendor to Peter Perperas (Project Supervisor), perperas@turnpike.state.nj.us at the New Jersey Turnpike Authority on a not to delay basis.

The awarded bidder shall make available one **fully completed** pilot model for inspection and approval by the Authority. The unit shall be transported (responsibility of the awarded vendor) to the NJTA Garden State Parkway Division's Telegraph Hill Maintenance Facility located at Garden State Parkway Exit 116 in Holmdel, NJ 07733.

DELIVERY INSTRUCTIONS:

- A. Vendor must contact Peter Perperas (Project Supervisor) at 732-442-8600 ext. 2868 for authorization to schedule date and time prior to delivery. Any work that needs to be completed including all pre-delivery preparation shall be done prior to delivery. **Deliveries shall be made to the NJTA Garden State Parkway Division's Telegraph Hill Maintenance Facility located at GSP Exit 116 in Holmdel, NJ 07733.**
- B. Vendor shall be responsible for all delivery, shipping and pick-up expenses.
- C. All units must be pre-delivery serviced, completely assembled, operational, and cleaned prior to delivery.
- D. The following administrative package **must** accompany all deliveries:
 - **Certificate of Origin:** stamped "Sales Tax Satisfied" and shall be made out to New Jersey Turnpike Authority, 581 Main St. Woodbridge, NJ 07095. Certificate of Origin shall have current date and be hand delivered to Peter Perperas after final acceptance of complete order.
 - **Invoice:** purchase order number must be displayed on vendors invoice. Invoice shall have current date and be hand delivered to Peter Perperas after final acceptance of complete order.
 - Warranty forms properly executed.
 - Four (4) keys for each vehicle shall be furnished (each vehicle shall have an independent key code). Successful bidder must supply a key code listing for each vehicle identification number. **NO EXCEPTIONS**
 - Four (4) keys, keyed alike for toolboxes or similar compartments shall be furnished for each vehicle. **NO EXCEPTIONS**

- State MVC (Motor Vehicle Commission) required inspection stickers shall be provided with each vehicle upon delivery.
- Federal Safety Inspections shall be performed and stickers shall be attached to the vehicles prior to delivery.
- Delivery of all units fully completed and fully compliant shall be made no later than two-hundred forty (240) days after receipt of Purchase Order.
- In the event the vendor fails to timely deliver the units, the vendor shall pay the Authority liquidated damages in the amount of \$304.00 per unit for each calendar day **(No Exceptions for Liquidated Damages)** beyond the maximum delivery date, as per Dataquest's Rental Rate Blue Book for Construction Equipment.

E. All units shall be delivered with a minimum of a half tank of fuel.

F. Deliveries made directly from the manufacturer to the Authority shall **not** be acceptable.

WARRANTY: All units delivered must be guaranteed to be free from defects in materials, design and workmanship for a minimum of two (2) years from the time of acceptance by the New Jersey Turnpike Authority (see additional warranties in specification). All warranties shall start upon written acceptance of units by the New Jersey Turnpike Authority. Warranty must include service availability from any manufacturers authorized dealer establishment most closely located to Parkway and Turnpike area. This repair facility may not be further than 100 miles from the Central Maintenance Facility in Holmdel, NJ 07733 or the Central Shops Maintenance Facility located in Hightstown, NJ 08520. If warranty service is required, the vendor who supplied the unit shall provide for pickup, delivery and repair of unit at no charge to the New Jersey Turnpike Authority. The vendor shall also have a program to include an in-house warranty. All warranty periods shall start from date of acceptance of unit by the NJTA.

EXCEPTION SHEET: Bidders making exceptions must note exceptions by item and indicate substitution in lieu and submit with bid, detailed specifications on the substitution. If the vendor is submitting an alternate product, component, feature or part to what is referenced in the specifications, the proposals **must** be accompanied by descriptive literature, marked and indicate the exact items to be furnished, with an engineering drawing of the same. **Failure to supply information requested may result in rejection of bid.** Where no exception is taken, the word "None" shall be neatly printed or typed on the exception sheet. **Failure to supply information and/or failure to complete the bidder's exception spaces in the prescribed manner may disqualify bid. It shall be understood that if no exception is taken, the vendor shall supply all material exactly as specified. No substitution will be permitted after receipt of bids.**

SERVICE PARTS IDENTIFICATION FORM: Vendor shall complete the entire Service Parts Identification Form, where applicable for chassis section. Replacement parts shall be available to the general using trade, parts shall not be proprietarily manufacturer protected. **Failure to complete form may result in rejection of bid.**

UNIT INFORMATION FORM: Vendor shall complete the entire Unit Information Form.
Failure to complete form may result in rejection of bid.

MANUFACTURER'S PRODUCTION SHEET: The vendor shall furnish one (1) copy of the actual Factory Production Sheet for each unit provided at time of delivery.

OPERATOR TRAINING: It shall be the responsibility of the successful bidder to supply all safety, operational and service training to New Jersey Turnpike Authority personnel in accordance with all applicable ANSI and OSHA regulations. The safety and operational training shall consist of a complete review and understanding of the manufacturer's owner manual, along with actual operation of equipment. The instructor shall emphasize all proper uses for safe operation.

MECHANIC TRAINING: Manufacturers structured and accredited new model training shall be provided on site at a minimum of 8 hours up to 110 automotive technicians and automotive supervisors. Individual class size shall not exceed 15 people in one session. The instruction shall be conducted by manufacture trained instructional staff to include new model advancements in performance, operation, and emissions technology as well as variations or advancements in maintenance and repair requirements, techniques, and tooling.

LABELS: Plastic stick-on labels shall not be acceptable.

ADVERTISEMENTS: No Dealer advertisements shall appear on unit or any other related equipment.

ACCESSORIES: All accessories shall be manufacturer installed when the item is available from the manufacturer.

FACILITIES: Bidders shall represent a manufacturer, which has in operation a factory adequate for the manufacture of the equipment, which it proposes to furnish. The manufacture(s) whose associated equipment or products are bid shall have a full service warranty and parts supply facility that can guarantee availability of parts within 24 hours after telephone order and shall be located within a 100 mile radius of either Central Shops Maintenance Facility (exit 8 on the NJ Turnpike) located in Hightstown, NJ 08520 or Telegraph Hill Maintenance Facility (exit 116 on the GSP) located in Holmdel, NJ 07733. This facility will be required to establish an in-house warranty program and provide all warranty work related to the equipment in the bid proposal. The bidder shall submit the locations, names and telephone numbers of people who are authorized to service the equipment or who can be reached for emergency service.

Location_____

Phone #_____

Contact_____

Name & Title

**VENDORS MUST LIST COST OF ALL ITEMS BELOW. FAILURE TO DO SO MAY
RESULT IN REJECTION OF BID.**

ITEM	UNIT COST
Tandem Dump Truck Chassis: TDTC-2013	
13-Cubic Yard Stainless Steel Dump Body: DB-2013	
Central Hydraulic System: CHS-2013	
Tailgate Spreader: TS-2013	
Rotator Lights: RL	
Snow Plow Lights: SPL-2013	
Snow Plow Hitch: SPH-2013	
Snow Plow: SP-2013	
7PTC: 7-Pole Connector	
	Total Unit Cost \$ _____

**SPECIFICATIONS: TDTC-2013
TANDEM DUMP TRUCK CHASSIS**

BIDDER'S INSTRUCTIONS

IT SHALL BE THE BIDDER'S RESPONSIBILITY TO CAREFULLY EXAMINE EACH ITEM OF THE SPECIFICATION. BIDDERS MUST INDICATE WHETHER THEY COMPLY OR NON-COMPLY FOR EACH LINE ITEM IN THE SPECIFICATION. FAILURE TO PROVIDE A COMPLETED BID MAY CAUSE REJECTION OF BID. ALL NON-COMPLY RESPONSES AND/OR BIDDERS PROPOSED "APPROVED EQUIVALENTS" MUST BE FULLY EXPLAINED ON EXCEPTION FORM, NOTING SECTION AND ITEM. FAILURE TO EXPLAIN NON-COMPLY RESPONSES OR FAILURE TO SUPPLY DETAILED LITERATURE/BROCHURES ON THE BIDDERS PROPOSED "APPROVED EQUIVALENTS" MAY CAUSE REJECTION OF BID. WHERE "MINIMUM" IS SPECIFIED, BIDDERS MUST PROPOSE AT LEAST THE MINIMUM/MAXIMUM SIZES OR THE BID MAY BE REJECTED.

GENERAL:	COMPLY	
	YES	NO
A. New current model conventional cab-chassis design 6 x 4 (set forward axle) with a thirteen (13) cubic yard stainless steel dump body and accessories.		
B. The unit shall be new and of the latest design and be in current production at time of submission of bid.		
C. Bidders must provide detailed specifications, technical sheets, and pictures describing exact unit, equipment, and accessories that shall be provided.		
D. All standard and optional equipment shall be Original Equipment Manufacturer (OEM).		
FRAME:		
A. 66,000 lbs. G.V.W.R.		
B. Wheelbase: 177".		
C. Cab to Axle: 102".		
D. Axle to Frame: as required by body builder.		
E. 10.125" x 3.580" x .312" 120,000 psi minimum main frame rails, one piece, extending 20" ahead of grille.		
F. 10.813" x 3.892" x .312" full "C" channel reinforcement, one piece extending the entire length of main frame including extension.		
G. Bolt-on or welded frame sections shall not be acceptable.		
H. Bolt-on front tow hooks with opening through the bumper. One right and one left, within easy access to afford quick operator hook up of tow chain. Hooks shall be of drop forged steel with a minimum of 44,500 lbs. working load. Grade 8 bolts shall be use to attach hook to chassis. Each hook shall be curved upward to assure tow chain will not fall off when no tension is		

present. Weld on hooks shall not be acceptable.		
I. The Authority reserves the right to determine final CA and AF dimension at issuance of purchase order.		
FRONT BUMPER:		
A. Heavy-duty steel 10" channel shall replace standard front bumper and shall be bolted via Grade 8 bolts and self-locking elastic nuts to the front frame extension of the chassis.		
B. The bumper shall have four (4) 5/16" holes drilled for placement of license plates on driver's side.		
C. Two (2) steps, one (1) each side shall be constructed of 2" Bustin or approved equivalent material.		
D. Steps shall be 8" wide x 8" deep.		
E. Step brackets shall be a minimum of 3/8" x 2" A36 material.		
FRONT CATWALK:		
A. The front frame extension shall incorporate an aluminum catwalk between the bumper and the chassis.		
B. The catwalk shall be three (3) section aluminum dirt shedding and have a separate top edge for positive foothold.		
C. Material shall be Bustin or approved equivalent and be attached via rust proof stainless steel bolts with self-locking elastic insert nuts.		
D. Catwalk shall be located to provide best possible access to the chassis and engine components.		
E. The outer two (2) sections shall be capable of supporting 500 lbs.		
FRONT AXLE:		
A. 20,000 lbs. capacity front axle.		
B. Double acting shock absorbers.		
C. Oil lubricated wheel bearings.		
D. Weight capacity of front axle must be able to accommodate snow plow hitch and snow plow specified in this bid package.		
FRONT SUSPENSION:		
A. 20,000 lbs. capacity front suspension.		
B. Multi-stage taper-leaf front springs with shock absorbers.		
C. 2,000 lbs. capacity auxiliary front springs.		
REAR AXLE:		
A. 46,000 lbs. capacity.		
B. Driver controlled main locking differential.		
C. Axle switch shall be LED back-lighted.		
D. An automatic disengage feature shall be supplied to disengage the locking mechanism after the vehicle reaches a speed of 25 mph.		
E. Factory installed synthetic gear lube and magnetic drain plug.		
F. Axle ratio shall enable vehicle to cruise at 65 mph at maximum G.V.W.R.		
REAR SUSPENSION:		
A. 46,000 lbs. capacity.		
DRIVE SHAFT:		
A. Greaseable main and inter axle shafts.		

B. Include rubber boot covered slip joints.		
BRAKES:		
A. ABS anti-lock air brakes.		
B. Diagnostic electronic capability shall inform operator and mechanic of any malfunctions including area of system failure.		
C. Air dryer, heated Meritor System Saver 1200 or approved equivalent.		
D. Compressor shall be of sufficient size to accommodate system.		
E. Air pressure gauges/low air pressure warning light and alarm shall be located in the instrument cluster.		
F. Automatic slack adjusters shall be provided.		
G. All air lines shall be color coded.		
H. Dual air reservoirs and trailer air brake package shall be supplied with glad hands and dust shields located at the rear of the frame. Include protection valve and hand control valve (trolley brake) on steering column.		
I. Parking brake alarm shall be provided. Horn shall sound when parking brake is not set with ignition off and any door opened.		
STEERING:		
A. Full hydraulic power steering.		
B. Steering column shall be tilt style.		
C. Air horn switch, cruise control switch, and throttle switch shall be located on the steering wheel.		
EXHAUST SYSTEM:		
A. Single horizontal muffler shall not interfere with body builder installations.		
B. The pipe shall be vertically frame-mounted and located on the curbside including a heat shield.		
C. A turn back or curved style tailpipe shall be included and mounted so the exhaust is angled away from rotator lights.		
D. Exhaust system support brackets shall not be cab mounted.		
E. An electronically activated combination engine and exhaust brake shall be included.		
ELECTRICAL:		
A. Programmable electrical system with self-diagnostics. System shall be designed to isolate electrical problems on the input/output side of circuit and display fault codes. Color coded and continuously numbered wiring shall be supplied.		
B. All electronically controlled accessory equipment shall be interfaced to a Body Integrated Remote Power Module mounted inside cab; up to 6 outputs and 6 inputs, maximum 20 amps per channel, maximum 80 amps for each required module. (Includes 2 dash-mounted switch pack with 6 switches latched/labeled and back-lighted) with this system including but not limited to switches, controls and indicators. Anticipated provisions shall be communicated to the chassis manufacture prior to chassis build.		
C. All circuit breakers shall be protected by manual reset circuit breakers and shall be mounted in the center control panel.		

D. Four (4) 12-volt maintenance free batteries, 2600 CCA minimum. Battery mounting shall not interfere with installation of hydraulic or body components. The battery box shall have a plastic or aluminum protective lid. Battery terminals shall be sealed. Included shall be a remote mounted jump-start terminal with clear access.		
E. AM/FM radio with weather band, clock, and speakers.		
F. Turn signal switch shall include “flash to pass” feature.		
G. Daytime running lights, fender mounted dual faced amber/amber directional lights in addition to front corner directional shall be provided.		
H. Taillights shall have a separate 8' of cable for left and right side body lights.		
I. The following lights shall automatically turn on when wiper switch is engaged: <ul style="list-style-type: none"> • Headlights • Taillights • Marker lights 		
J. Five (5) LED cab marker lights shall be provided.		
K. Wipers shall have two (2) speeds with washer and intermittent feature. Wiper control shall force wipers to their slowest intermittent speed when parking brake is set and wipers are left on for more than 30 seconds.		
L. 185-amp Leece-Neville BLP2361H brushless, pad mounted or approved equivalent alternator.		
M. Gauges & Lights: <ul style="list-style-type: none"> • Oil pressure • Water temperature • Warning lights • Voltmeter • Speedometer • Tachometer • Odometer • Trip miles • Engine hours • Trip hours 		
N. Dual electric horns.		
O. Back-up alarm shall be a Preco 45-AA or approved equivalent. Shock mounted alarm shall be mounted under right taillight.		
P. Body builder harness shall be located outside of cab. Included shall be stop, tail, turn, and marker light circuits, ignition controlled auxiliary feed, and ground.		
Q. Chassis manufacture shall supply 2-way radio wiring with 20 amp fuse protection. Shall include 5 amp fuse and be routed to overhead radio console.		
R. A weatherproof module for body builder connections shall be located inside the cab.		
S. All switches must be back-lighted and (OEM) labeled.		
T. All electrical powered auxiliary equipment not installed by chassis		

manufacturer shall be wired in accordance with section A & B (ELECTRICAL) and include proper circuit protection. All wiring shall be installed in a weather tight junction box or weather pack connector. Solder less connectors are unacceptable. Any holes drilled for installation of accessories, wiring, brackets, etc. shall be properly primed, sealed with silicone and painted prior to installation to prevent rust.		
U. Chassis manufacture shall supply a 36" wiring harness for separate snow plow head lights and turn signals with LED back-lighted rocker type switch.		
V. Snowplow lights shall be supplied. See Specifications: SPL-2013.		
W. In addition to the control switch, all lighting and accessories shall turn off with ignition key "off" except for Federal D.O.T. requirements.		
X. It shall be the responsibility of the body supplier to ensure capability of installed equipment with switches provided by chassis manufacturer. The following switches shall be provided by the chassis manufacturer and shall be incorporated in the chassis standard wiring and circuit protection: NO EXCEPTIONS <ul style="list-style-type: none"> • Plow lights • Front rotators • Rear warning lights • Spinner light 		
ENGINE:		
A. Electronic 6-cylinder turbo-charged diesel engine.		
B. 330 Horsepower minimum.		
C. 1150 lb./ft. @ 1,000 rpm minimum.		
D. 570 Cubic inch minimum.		
E. Replaceable "wet type" cylinder piston liners. Oil cooled pistons.		
F. Heavy-duty starter with over crank protection.		
G. Cruise control integral with steering wheel.		
H. Provision for remote mounted engine control to include wiring for body builder installation of PTO controls, ignition switch controlled.		
I. Heavy-duty radiator with two (2) speed air operated fan drive.		
J. Ethylene Propylene Diene Monomer (EPDM) hoses or approved equivalent.		
K. Constant torque heat shrink radiator clamps.		
L. Dual element air cleaner with driver controlled snow valve, integral dash mounted air restriction gauge.		
M. 110-volt engine block heater with weather protected flip plug cover shall be located under driver's door.		
N. Extended long life coolant protected to at least -20° F. The system shall be tagged indicating make, type of anti-freeze and degree of protection.		
O. Low coolant level warning light and audible alarm.		
P. Automatic engine shutdown system for oil pressure, coolant temperature, and coolant level with a 30 second delay and auto override.		
Q. Heated fuel/water separator.		
R. Fuel pressure sensor.		

S. All engine and emission related system fluids shall remain as a stable liquid unaided within the normal expected vehicle ambient temperature operating range of -20° F to 100° F.		
TRANSMISSION:		
A. Allison Model 3000 RDS or approved equivalent.		
B. Five (5) forward speeds automatic with over drive and one (1) reverse speed with dash-mounted push button control.		
C. Included shall be a transmission oil cooler and temperature gauge.		
D. Synthetic transmission fluid shall be used and installed by OEM.		
E. Transmission mounted PTO.		
F. Furnished PTO provision and dash mounted temperature gauge.		
G. Chassis manufacturer installed PTO accommodation for electric cover hydraulic PTO with dash mounted back-lighted switch and indicator light in gauge cluster. Shall have wiring incorporated and over-speed protection programmed within the OEM electrical system.		
FUEL TANK:		
A. 80-gallon minimum capacity aluminum fuel tank shall be mounted under cab and include stainless steel straps.		
B. Thermostat controlled electric fuel heater and filter with filter restriction/change indicator.		
C. Fuel tank shall be labeled in 1" high green letters "DIESEL FUEL ONLY" .		
D. Vent tube for fuel tank shall be attached to a bracket via zip-tie.		
E. A minimum of two (2) self-cleaning steps shall be provided on both sides of cab with the lower step not exceeding 20" from the ground.		
FRONT TIRES:		
A. 315/80R22.5 tubeless type radial, 20 ply G289 Goodyear or approved equivalent.		
REAR TIRES:		
A. 11R22.5 tubeless type radial, 16 ply G288 Goodyear or approved equivalent.		
SPARE TIRES:		
A. One (1) front spare tire and one (1) rear spare tire for each truck ordered.		
B. Spare tires shall be mounted, balanced and be identical to what is supplied with vehicle.		
CAB:		
A. Conventional galvanized steel cab.		
B. Odometer shall display miles, trip miles, engine hours, trip hours, and engine/vehicle system codes.		
C. Cab rear air bag suspension.		
D. All glass shall be tinted.		
E. Body builder "knockout" shall be provided in cab floor for body builder connections.		
F. Air operated high-back vinyl driver seat with headrest and lumbar support and inboard armrest.		

G. High-back vinyl non-suspended passenger seat with headrest.		
H. 3-point orange/fluorescent color seatbelts with automatic retractors.		
I. Overhead console with radio pocket wired as described in Paragraph Q of Electrical Section.		
J. Front storage pockets.		
K. Dome light, left and right interior courtesy lights. Lights shall activate when doors are opened.		
L. Dual sun visors.		
M. In-dash cup holder.		
N. Driver's door storage pocket.		
O. Interior grab handles on both sides.		
P. Chrome exterior grab handle with rubber insert-drivers side of cab.		
Q. Exterior mirrors shall be approximately 16" x 7" with break-away style "C" stainless steel brackets and convex mirrors. A look down 6" x 10" panoramic mirror shall be mounted above passenger door. Both primary mirrors shall be motorized and controlled by a switch located in cab within easy reach of the driver. Primary and convex mirrors shall be thermostatically heated.		
R. HVAC system shall include heater/defroster/air conditioning. Air conditioning system shall have self-diagnostic features with dash displayed fault codes.		
S. Standard instrumentation packages shall be included with plug in type gauges.		
T. Wheel well rubber fender extensions shall not be acceptable.		
PINTLE HOOK AND PLATE:		
A. Rear pintle hook and plate shall be installed and include a suitable cotter pin to facilitate locking the release. Cotter pin shall be attached to the pintle hook assembly by means of a light duty chain to prevent its loss.		
B. A ½" thick by at least 36" wide formed steel plate, full width of chassis frame rails, with a 3" return flange at the bottom shall be bolted to the chassis frame.		
C. Bottom and side support gussets shall be included.		
D. Two (2) swivel ¾" cold rolled steel "D" loops, 3" i.d. shall be attached to the bottom flange.		
E. Properly sized Grade 8 bolts shall be used throughout the installation.		
F. The pintle hook height shall be 26" from ground to center of hook.		
G. A non-metallic weatherproof seven (7) wire trailer socket shall be mounted through the hook plate on the upper left side of the pintle hook and wired to the chassis as outlined in Specifications: 7PTC. Exact location shall be determined by contacting the NJTA Inspector prior to mounting.		
H. The pintle hook (rated at a minimum of 20 tons) shall be attached to the frame plate with Grade 8 bolts in accordance to the manufacturer's specification.		
I. An electronic brake controller in addition to the ABS brake controller shall be cab mounted and wired into the seven (7) wire plug as per Specifications: 7PTC. Exact location shall be determined by contacting the NJTA Inspector		

prior to mounting.		
J. A complete ABS air brake trailer system including a hand valve control and trailer protection valve shall be installed with the exception of the Glad Hands. The Glad Hand outlets on the pintle plate (location to be determined by the NJTA Inspector) shall be plugged to prevent air leakage. The Glad Hands shall be supplied to the Authority separately and not installed.		
MISCELLANEOUS:		
A. Provide in cab a dry chemical 5 lb. "UL" listed fire extinguisher suitable for ABC class fires. A quick-release type metal bracket shall be used to mount extinguisher to base of control panel pedestal. <u>NOTE:</u> Holes must <u>not</u> be drilled into pedestal to mount quick-release bracket due to wiring running through pedestal. Wires passing through floor at bottom of pedestal must be neat, uniform, and filled with clear silicone.		
B. Provide a D.O.T. approved reflective triangle kit in cab.		
PAINT:		
A. All metal parts shall have the mill scale and oil removed by means of a high-pressure chemical cleaner prior to painting.		
B. All frame and running gear shall be painted manufacturers black.		
C. The top of the hood shall be painted non-reflective flat black.		
D. Other sections of the cab shall be painted with DuPont Dulux Omaha Orange Enamel # 93-082 or approved equivalent. Paint shall be applied in a two-step process with the orange base coat and additional polyurethane overcoat.		
E. Wheels, bumper, battery box, air tanks, and engine oil pan shall be powder coat painted.		
DIAGNOSTIC, REPAIR & PARTS:		
A. The awarded vendor shall provide a two (2) year manufacturers Web-based diagnostic, repair, and parts subscription including truck chassis and engine.		
B. Diagnostic and repair information for transmission, air-brake system, and other installed components shall be Web-based or PC based software.		
C. Five (5) complete sets each of manufacturers diagnostic engine system and diagnostic electrical system interface software, to include all necessary cabling and connections for a laptop computer shall be supplied.		
D. Included shall be a two (2) year subscription renewal for the twenty (20) existing engine system diagnostic interface tools.		
MANUALS:		
A. Detailed schematic and description of any body hydraulics, electrical, and other components not installed by chassis manufacturer.		
B. Eight (8) of each of the following manuals in either paper forms or computer discs shall be supplied upon delivery: Operation, Repair, Maintenance, Parts, and Electrical.		
WARRANTY:		
A. Engine shall be covered for seven (7) years/150,000 miles/5400 hours including all electronic engine components and injectors at 100% parts and labor.		

B. Cab shall be covered for five (5) years unlimited miles for perforation, corrosion, and structure.		
C. The frame shall be covered at 100% parts and labor for seven (7) years/unlimited miles for cracks.		
D. The transmission shall be covered for five (5) years/unlimited mileage at 100% parts and labor.		
E. All warranties shall start upon date of acceptance from the New Jersey Turnpike Authority.		
PROVISIONS:		
A. Vehicles in this bid package shall <u>not</u> be used as lead vehicles in transporting (piggybacking) other vehicles and/or equipment.		
B. Vendor <u>must</u> show written proof that these vehicles were not used as lead vehicles.		
C. Mileage on the odometer for each vehicle <u>must not</u> exceed 600 miles, mileage warranties shall be adjusted accordingly from odometer at time of acceptance of these vehicles by the New Jersey Turnpike Authority.		
D. Vendor shall show written proof of the adjusted/extended warranty at time of delivery.		
E. Vendors shall not be allowed to use vehicles in any type of shows, conventions, brochures, etc. without prior written consent of the New Jersey Turnpike Authority.		

SPECIFICATIONS: DB-2013
THIRTEEN (13) CUBIC YARD STAINLESS STEEL DUMP BODY

BIDDER'S INSTRUCTIONS

IT SHALL BE THE BIDDER'S RESPONSIBILITY TO CAREFULLY EXAMINE EACH ITEM OF THE SPECIFICATION. BIDDERS MUST INDICATE WHETHER THEY COMPLY OR NON-COMPLY FOR EACH LINE ITEM IN THE SPECIFICATION. FAILURE TO PROVIDE A COMPLETED BID MAY CAUSE REJECTION OF BID. ALL NON-COMPLY RESPONSES AND/OR BIDDERS PROPOSED "APPROVED EQUIVALENTS" MUST BE FULLY EXPLAINED ON EXCEPTION FORM, NOTING SECTION AND ITEM. FAILURE TO EXPLAIN NON-COMPLY RESPONSES OR FAILURE TO SUPPLY DETAILED LITERATURE/BROCHURES ON THE BIDDERS PROPOSED "APPROVED EQUIVALENTS" MAY CAUSE REJECTION OF BID. WHERE "MINIMUM" IS SPECIFIED, BIDDERS MUST PROPOSE AT LEAST THE MINIMUM/MAXIMUM SIZES OR THE BID MAY BE REJECTED.

GENERAL:	COMPLY	
	YES	NO
A. Thirteen (13) cubic yard minimum 201 stainless steel dump body.		
B. All component installation shall conform to the latest recommendation, procedures, and regulations of the following organizations: ASME, ASTM, AISI, API, AWS, DOT, FPS, ICC, JIC, MSS, NFPA, NEMA, NTEA, SAE, TTMA, and USASI.		
C. Dump body and hoist shall be of the latest design. Body and hoist shall be installed by an installer approved by the manufacturer of said components.		
D. Dump body and hoist shall be sized to provide proper load lifting capacity based upon size of each component in relationship to overall size of equipment specified.		
E. All components and installation shall be reviewed and approved in writing by the awarded vendors engineering department and shall be given to the NJTA Inspector at the pilot model inspection.		
F. Solid weld construction shall be used throughout unless otherwise specified.		
BODY DIMENSIONS:		
A. The following dimensions shall be considered minimums:		
Length.....162" Front & Rear Post.....52"		
Width.....96" Tailgate Height.....52"		
Side Height.....44" Inside width.....86"		
Cab Shield.....None		
BODY CONSTRUCTION:		
A. The body shall be constructed of 7-gauge 201 stainless steel.		
B. The floor shall be one-piece with a minimum of ¼" thick abrasive		

resistant Hardox 450 or approved equivalent steel with a built in 5" break formed radius. Weld in radius shall not be acceptable.		
C. Body shall have one (1) decal mounted on the passenger side lower front corner post and one (1) decal mounted on the driver's side lower front corner post stating "HARDOX FLOOR". Decals shall be 5" wide x 5" long with white background and black 1½" high lettering.		
D. The under structure long members shall be 10" I beam, 12 lbs./ft. steel.		
E. The bottom side rails, dirt shedder, and top rails shall be one-piece full length construction.		
F. The corner posts and side horizontal braces shall be solid weld construction.		
G. The two (2) full welded braces shall be 10-gauge centered between the top rail and bottom rail and run from rear corner post to front corner post.		
H. The face of the brace shall be 4" and overall width of 8".		
I. Both top and bottom of brace shall be break formed to have a dirt shedding angle. Side brace depth shall be 3½".		
J. The corner posts shall have sideboard holders.		
K. The sideboards shall be made of full length 6" x 2" solid oak and be sealed, primed, and painted the same color as the cab of the truck. The boards shall be bolted in place through the board holders (front & back).		
L. The front corner posts shall be 10-gauge, 9" wide and 3¾" deep.		
M. The front posts shall extend from the bottom rub rail to the top rail.		
N. The rearward side of corner post shall be at a 90° angle to allow welding of horizontal side braces.		
O. The front side of post shall be angled forward to meet at head sheet/side sheet seam.		
P. The rear corner posts shall be 7-gauge, 12" wide and 4¾" deep.		
Q. The bulkhead shall be one-piece construction 7-gauge, properly reinforced with top edge at cab roof height.		
R. Vinyl barriers shall be placed between all dissimilar metals.		
TAILGATE:		
A. The tailgate shall have two (2) horizontal braces and four (4) vertical braces with inverted angle dirt shedder on the top brace.		
B. The two (2) horizontal braces shall be dirt shedding on both top and bottom for overall width of 7" with 3" face and 3" deep.		
C. A full-length latch pin shall be inserted.		
D. Tailgate chains shall be a minimum of .375" high sheen, clevis removable and covered with nylon mesh.		
E. Top pins shall be 1" diameter standard style and include a .125" retention chain.		
F. Banjo plates shall be a minimum of .375" thick, two (2) per side.		
G. Two (2) "J" hooks shall be permanently attached to lower section of tailgate through stripe plate directly attached to tailgate.		
H. Top hardware shall be a flush mount style.		
I. Bolt-on type hardware and pins shall not be acceptable.		

J. In each lower corner of the tailgate shall be a yellow caution label (3" x 6") that reads in ¾" high black letters "STAY CLEAR OF TAILGATE" .		
K. A stripe plate (See Specifications: Stripe Plate) shall be mounted onto the rear tailgate of the dump truck.		
WALK RAIL:		
A. 2½" wide stainless steel, raised diamond plate with weep holes, one-piece full length both sides. Walk rail shall be on both bottom rail and intermediate horizontal bracing. Gussets for support of walk rail shall be every 12" or less and evenly spaced.		
MANUAL PULL ARM TARP:		
A. The manual pull arm tarp system shall be provided and attached to dump body.		
B. The tarp system shall be sized to completely cover a loaded heaped dump body.		
C. The design shall be a steel spring type and include a neoprene material cover to withstand use with asphalt operations.		
D. Aluminum arms shall be attached to sides of the body in order to operate tarp evenly and shall be sized as to sufficiently handle the tarp.		
E. Urethane bushings shall be installed at the pivot points to eliminate wear and noise.		
F. The entire unit shall be built to withstand severe service and weather throughout all phases of operation.		
G. Operating the tarp shall be controlled by a single person from outside the cab standing at ground level.		
H. A rope centered at the rear of the tarp shall enable the operator to manually pull the tarp across the load and tie it down on the "J" hooks located on the tailgate.		
I. Uncovering the tarp shall be accomplished by releasing the tie down rope and starting the aluminum arm back until the spring takes over retracting the tarp.		
REAR FLAPS:		
A. Neoprene anti-sail, anti-splash bolted to a permanent aluminum mount .375" x proper width bracket.		
B. Bracket and flap shall be sized and mounted so not to exceed 22° Federal Regulation.		
MUD GUARDS:		
A. 3/16", 201 stainless steel of proper size permanently attached in front of rear wheels, equidistant from front of tire as rear flap is of rear of tire.		
GRAB HANDLES:		
A. Two (2) ¾" diameter steel rods, full vertical length, left and right side front. Spacing of rods shall be determined by contacting the NJTA Inspector prior to mounting.		
LADDERS: (Slide-in type)		
A. 3" x 12" stainless steel, raised diamond plate, both sides as lows as practical for slide-in type style.		
B. A wedge latch shall be provided to secure ladders horizontally with body		

while vehicle is in transit.		
C. Down position of ladders shall be 90° vertical of body and shall not interfere with other apparatus on vehicle.		
LIGHTING:		
A. All LED lighting shall be centrally grounded in a common junction box.		
B. All wiring to shock mounted marker lights shall be 14/2 conductor type “gpt” and include a sealed two (2) pin quick-connector.		
C. All quick-plug connections shall be treated with electrical grease at time of installation.		
D. All wiring shall be of the multi-conductor harness type securely attached and concealed.		
E. Rubber grommets shall be used where wires pass through metal.		
F. All lighting shall be LED and incorporate Lexan reflective or Polycarbonate lenses.		
G. There shall be four (4) rear body post lights. A minimum of 12 square inch oval amber lights recessed and mounted in each rear corner post. Lights shall be a Whelen Model or approved equivalent and shall consist of 500 Series Lighthouse/01-0664003AO, grommet mount kit/5Grommet, 2 pins and connector kit-waterproof (Deutsch)/W444D, 2 sockets & connector kit-waterproof (Deutsch)/W446D, four (4) of each of the components listed above shall be installed for each vehicle in the bid package and lights shall be programmed to double pulse flash.		
H. Lights shall be mounted as far apart as possible and provide a criss-cross pattern by means of component synchronization or vehicle logic programming. Left top to right bottom and right top to left bottom. Electronic or motorized flasher units shall not be an acceptable method. Exact location shall be determined by contacting the NJTA Inspector prior to installation.		
I. Lights shall be completely sealed and shock mounted and wired into separate light systems.		
J. All wiring shall be sealed and routed to prevent damage.		
K. Two (2) 4" round red LED lights shall be installed in the upper portion of the tailgate (one on each side). Exact location shall be determined by contacting NJTA Inspector prior to installation.		
L. All wiring shall terminate in a high-impact plastic junction box.		
TAILGATE CONTROL:		
A. Tailgate shall have <u>air-operated</u> lower tailgate lock release. All linkage and latch components shall be stainless steel.		
B. Air operation shall occur with one (1) pancake style air chamber mounted on inside of body's rear apron, centered from side to side.		
C. A minimum of 1" steel cross rod shall be provided at rear of body and include stainless steel bushings with grease fittings.		
D. Control rods shall be attached to rear latches via connecting links and include locking adjustments.		
E. Connecting links shall be routed through rear long sill.		
F. All grease fittings throughout construction shall include dust covers.		

SPILL PLATES:		
A. 10-gauge stainless steel spill plates shall be bolted to the inside of the tailgate.		
B. Spill plates shall be from top to just above floor/side radius and wide enough to seal off material flow when tailgate is resting against spreader spill plate. A rear bolt-on stainless steel apron shall be provided.		
CONSPICUITY ENHANCEMENT:		
A. Each dump body rubrail and rear shall include 2" wide conspicuity enhancement.		
B. The enhancement shall be alternating red and white stripes.		
C. Enhancement shall provide reflection even in daylight hours.		
D. Conspicuity tape shall have twelve (12) different patterns of micro-prisms for maximum visibility.		
E. The reflective system shall be impervious to ultra violet radiation via internal pigmentation with acrylic layer protection.		
F. Conspicuity tape shall withstand all weather conditions and repeated washing and meet all FMVSS 108 requirements.		
G. 1" wide stripes shall be provided on each tarp rail.		
HOIST:		
A. Body and hoist shall be compatible in design, build, and installer.		
B. NTEA rated and certified type V, class 90.		
C. Unit shall be a double acting, under body subframe type.		
D. All pivot points shall greasable pivots with grease fittings with protective dust covers.		
E. All bolts throughout the hoist assembly shall be Grade 8 and require nylon lock nuts.		
F. The hoist trunnion weldment shall consist of a trunnion cross tube constructed from 5" x 5" x 5/8" wall square tube.		
G. The inner and outer lift arms shall be constructed of 1" thick Grade 50 steel plate.		
H. Subframe of the hoist shall be constructed of 6" x 10.5" structural C-channel and have two (2) body props, one (1) on each side of frame.		
I. Rear dump body pivot assembly shall be cut into the frame rail of truck behind the rear spring hanger only and be 8" x 6" x 1/2" formed angle full width to each frame rail, approximately 34" width.		
J. The rear hinge pin shall be 2" stainless steel connecting to 2 1/2" hinge blocks using greaseable bushings for a minimal pin-to-bushing clearance with grease zerks in each block.		
K. Zerks must not interfere with full dumping angle of body and have dust caps.		
L. A dash-mounted OEM integrated and labeled "body up" warning light shall be supplied.		
M. All pivot points shall include grease fittings with protective dust covers.		
N. All grease fittings shall be designed and angled appropriately to be accessible for servicing.		

BODY VIBRATOR:		
A. Big Bertha Model DC-3500-2500 or approved equivalent body vibrator shall be installed underneath the dump body.		
B. The vibrator shall operate with a momentary switch that shall be located in the chassis manufacturer's dash.		
C. All necessary support plates, channels, or any other types of hardware needed shall be used to install the body vibrator per the manufacturer's specifications.		
D. Body vibrator shall be mounted in the precise area the manufacturer recommends.		
CYLINDER:		
A. Double acting stage with internal poppet with field replaceable rod packing design with (2) 8" cylinders with 24" of stroke utilizing 2" nitrile plated rods.		
B. Piston rod with stroke to provide a dumping angle of 55°.		
C. Minimum of (2) two piston rings.		

**SPECIFICATIONS: CHS-2013
CENTRAL HYDRAULIC SYSTEM**

BIDDER'S INSTRUCTIONS

IT SHALL BE THE BIDDER'S RESPONSIBILITY TO CAREFULLY EXAMINE EACH ITEM OF THE SPECIFICATION. BIDDERS MUST INDICATE WHETHER THEY COMPLY OR NON-COMPLY FOR EACH LINE ITEM IN THE SPECIFICATION. FAILURE TO PROVIDE A COMPLETED BID MAY CAUSE REJECTION OF BID. ALL NON-COMPLY RESPONSES AND/OR BIDDERS PROPOSED "APPROVED EQUIVALENTS" MUST BE FULLY EXPLAINED ON EXCEPTION FORM, NOTING SECTION AND ITEM. FAILURE TO EXPLAIN NON-COMPLY RESPONSES OR FAILURE TO SUPPLY DETAILED LITERATURE/BROCHURES ON THE BIDDERS PROPOSED "APPROVED EQUIVALENTS" MAY CAUSE REJECTION OF BID. WHERE "MINIMUM" IS SPECIFIED, BIDDERS MUST PROPOSE AT LEAST THE MINIMUM/MAXIMUM SIZES OR THE BID MAY BE REJECTED.

GENERAL:	COMPLY	
	YES	NO
A. The system shall provide hydraulic fluid to operate the dump body hoist cylinders, snow plow hydraulic cylinders, and hydraulically operated material spreader.		
B. The hydraulic system shall be capable of running three (3) or more hydraulic functions simultaneously without inhibiting the action of the other.		
C. Fluid loss protection system shall be accomplished by means of a level sensor in hydraulic tank.		
D. The complete hydraulic system including cylinders, motors, fittings, valves, hoses, etc. shall conform to the highest quality of commercial hydraulic installation standards of the following organizations: ASME, ASTM, AISI, API, FPS, ICC, ISO, JIC, MISS, NFPA, NEMA, SAE, and USASI.		
E. The hydraulic system pressure and flow requirements shall be compatible with the operating rpm ranges of the trucks engine.		
F. Bidder shall submit with bid a complete hydraulic schematic including all components with manufacturer's names and model numbers including operational specifications.		
G. The successful bidder shall be responsible to demonstrate at an Authority facility the complete functional and performance capabilities of the hydraulic system and all affected components.		
HYDRAULIC PUMP:		
A. The hydraulic pump shall be an axial piston pressure and flow compensated load-sensing type.		
B. The pump shall have a displacement of no less than 4.5 cubic inches per revolution.		
C. The pump shall have a minimum 1½" suction line and a minimum ½"		

control drain line plumbed directly back to the reservoir.		
D. The pump shall be capable of speeds exceeding 3,000 rpm and pressure rated in excess of 3,000 psi.		
E. The pump shall be double sealed to protect it from salt spray and debris.		
F. Hot shift PTO shall be mounted to the transmission.		
PUMP CONTROL:		
A. Hydraulic system logic of the pump control shall automatically select and adjust the discharge pressure and flow in regard to the highest load regardless of the number of functions engaged or the engine rpm.		
B. A high-pressure adjustable compensator shall be provided.		
SHUT DOWN SYSTEM:		
A. The system shall be designed so that when the float contacts close, the PTO will disengage and stop pump flow.		
B. An OEM incorporated annunciator in the cab shall alert driver that the PTO has been disengaged.		
C. Located in the manifold enclosure shall be an override switch wired to de-energize the shut down system to facilitate diagnostics and equipment storage.		
D. The shutdown system shall include an indicator light mounted in the dash and shall be clearly identified.		
LOW OIL SHUTDOWN:		
A. The hydraulic system shall have a low oil shutdown system.		
B. A single, normally closed or opened electrically operated, 12 volt DC unit shall be mounted in the pump discharge circuit to stop all oil flow when the oil level drops to an unsafe condition.		
C. The unit shall be capable of full pump flow with minimal pressure drop.		
D. The hydraulic reservoir shall have a float switch.		
E. The float switch shall provide an electric signal to shutdown system.		
F. A manual override shall be wired into shutdown system to allow emergency operations of hydraulics.		
G. The shutdown system shall include an indicator light and shall be clearly identified.		
MAIN PRESSURE HOSES & PIPE:		
A. There shall be a minimum working pressure of 2,250 psi and minimum burst pressure of 8,000 psi for all hydraulic lines except suction, drain and return lines.		
B. The hydraulic fluid flow velocity shall not exceed fifteen (15) feet per second.		
SUCTION HOSES & PIPE:		
A. There shall be a minimum of 250 psi working pressure and a burst pressure of 500 psi. The hydraulic fluid flow velocity shall not exceed three (3) feet per second.		
B. Suction line shall be non-collapsible type.		
C. The hydraulic fluid flow velocity shall not exceed three (3) feet per second.		
RETURN & DRAIN LINES:		
A. There shall be a minimum working pressure of 500 psi and burst pressure		

of 1,000 psi.		
B. The hydraulic fluid flow velocity shall not exceed seven (7) feet per second.		
PIPE FITTINGS:		
A. Fittings shall be fabricated or be of forged steel.		
B. Fittings shall be threaded.		
C. High-pressure fittings shall be used on all pressure lines. Malleable iron fittings may be used for suction, return and drain lines. Galvanized fittings shall not be acceptable.		
D. Pipe, pipe fittings and hose couplings shall have NPT pipe threads.		
E. Galvanized pipe or fittings shall not be acceptable for any hydraulic lines.		
F. The hydraulic lines shall be routed along the frame rail on the same side as the hydraulic valve enclosure and the reservoir.		
G. Line routing shall not interfere with chassis or equipment components.		
H. Lines shall be routed so the engine oil pan or transmission can be removed without first removing the hydraulic lines.		
I. Hydraulic hoses shall not pass over or next to the exhaust system.		
J. Hydraulic lines shall be supported by pipe/tube clamps and supports manufactured by Adel, Hycon or approved equivalent.		
K. Hydraulic lines shall be routed to leave lines protected and free from abnormal wear or vibration.		
L. Each length of pipe shall have at least three (3) supports.		
M. Lowest line (pipe) shall be mounted to provide clearance for the front springs to compress (flex) up against the frame rail spring stops.		
N. Pipe lines shall be mounted and supported to provide full serviceability.		
HYDRAULIC FILTER:		
A. Hydraulic oil filter shall be mounted in the reservoir.		
B. Hydraulic filter shall be a 16-micron absolute and rated for no less than 60 gpm.		
C. Hydraulic filter shall include visual and electrical bypass indicators.		
D. A warning light shall be OEM incorporated and mounted in the cab and wired to the electrical indicator.		
TRI-PORT HYDRAULIC TEST FIXTURE:		
A. Triple function test port shall be installed in main pressure line between pump discharge and pressure inlet to the valve enclosure to monitor hydraulic flow, pressure (psi) and hydraulic temperature.		
B. Total of three (3) diagnostic tools shall be supplied upon delivery.		
HYDRAULIC LINES AND PLUMBING:		
A. Hydraulic lines and plumbing shall be of sufficient capacity so as not to create heat or turbulence within hydraulic system.		
B. Suction line between reservoir and pump shall be a minimum of 1½" i.d. with a minimum SAE 100-R4 rating and shall be secured on both ends via heavy-duty banding straps.		
C. All pressure hoses, including signal sense to pump shall have swivel fittings on both ends and have a minimum SAE 100-R2 rating.		

D. All hydraulic hoses shall be installed with the appropriate angled fittings, where necessary to alleviate sharp hose angles.		
E. Return lines and case drain shall have minimum SAE 100-R1 rating.		
F. Hydraulic lines shall be routed to minimize interference with equipment and chassis components requiring periodic servicing.		
G. Support brackets shall be provided where appropriate to protect lines from damage by abrasion, cutting or impact.		
H. Hoses shall not be routed near exhaust manifold pipes, bolts, sharp edges, or exhaust system.		
I. Pipe fittings shall not acceptable in any high-pressure line.		
J. Maximum distance between support clamps on all hydraulic lines shall be 12". Plastic ties shall not be acceptable.		
K. Hydraulic hose abrasion protection shall be either a sleeve or coil wrap (plastic wire loom shall not be acceptable).		
BODY HOIST RAISE-HOLD-LOWER SECTION:		
A. The body hoist raise-hold-lower section shall provide system flow to the body hoist for raising and lowering.		
B. The body raise-hold-lower circuit shall contain a protection relief valve to protect the hoist cylinder from high pressure shock loading and to facilitate the capability of manual controlled lowering of the body in an emergency situation.		
C. The solenoid valves shall have manual override capabilities.		
D. Pressure settings shall be determined by the recommendations of the manufacturer of the supplied hoist cylinder.		
E. A normally closed body limiting switch shall be installed in the hoist up circuit and facilitate adjustment from 10' 2" to 13' 6" maximum body height.		
F. The switch shall be activated for spreading operations so the raised body height shall not exceed a maximum height as stated above.		
G. The spreader control panel located on the pedestal in cab shall have a removable switch key labeled to indicate mode key position "winter" or "summer".		
H. The "summer" position shall allow the body to dump to the full dump height.		
I. The switch shall function in a temperature range between -40° to +170° F.		
PLOW RAISE-HOLD-LOWER SECTION:		
A. The plow raise-hold-lower section shall provide system flow to the plow lift cylinder for raising and lowering.		
B. The plow raise-hold-lower circuit shall contain a relief valve to protect the plow cylinder from high pressure shock loading and to facilitate the capability of remote controlled lowering of the plow cylinder in an emergency situation that shall not require tools or engine running.		
C. The directional solenoid valve shall be a three position four-way type.		
D. The valve shall be interchangeable with the directional valve of the hoist circuits.		
E. The solenoid valve shall be powered by 12-volt DC wet pin armature solenoids and shall be CSA approved.		

F. The solenoid valves shall have manual override capabilities and be arc suppressed.		
G. A lock valve shall be provided to prevent plow drift.		
H. The hydraulic lines to the lift cylinder shall be equipped with Aeroquip or approved equivalent disconnect couplings with attached dust caps.		
I. The coupling shall be mounted on the curbside of the bumper and be permanently labeled.		
PLOW REVERSING:		
A. Plow power reverse circuit shall contain adjustable flow limiters.		
B. The directional solenoid valve shall be a three position four-way type.		
C. The valve shall be interchangeable with the directional valve of the hoist circuit.		
D. Solenoid valve shall have both plow cylinder ports open to the tank in the neutral position to eliminate high-pressure buildup.		
E. Solenoid valve shall be powered by 12-volt DC wet pin armature solenoids and shall be CSA approved.		
F. Solenoid valves shall have manual override capabilities and be arc suppressed.		
G. A relief valve shall be supplied for remote plow installation for the power reverse hydraulic lock.		
H. The dual static intensification relief valve shall protect the plow angle cylinders from high-pressure shock loading and to facilitate the capability of remote controlled angling of the plow in an emergency situation.		
I. Relief valve shall be replaceable without removing the valve body or disconnecting the plow power reverse piping.		
J. Hydraulic lines to the reversing cylinders shall be equipped with Aeroquip or approved equal quick-disconnect couplings with attached dust caps, mounted on the curbside of the bumper and permanently labeled.		
K. Plow quick-disconnect couplings shall be piped starting from the curbside of the bumper: 1st "Plow Right", 2nd "Plow Left", 3rd "Plow Up" and "Plow Down".		
L. Couplings shall be permanently labeled.		
M. Couplings shall be arranged within the protective cover so the plow hoses can be connected or disconnected with the gloved hand.		
AUGER:		
A. Auger section shall contain a pressure compensated, load sensed proportional control valve.		
B. The valve shall be a three position four-way type and shall be designed for parallel hydraulic circuit operation.		
C. The valve shall be voltage to flow proportional in the auger forward position and reverse position. Both shall be arc suppressed.		
D. Auger hydraulic circuit shall include a pressure switch located inside enclosure.		
E. The pressure switch's function is to indicate falling pressure in the auger circuit such as when the spreader is running empty.		
F. The driver shall be warned of the above condition by lighting of the panel		

low material annunciator.		
SPINNER:		
A. Spinner section shall contain a pressure compensated, load sensed proportional control valve.		
B. The valve shall be a two position two-way type designed for parallel hydraulic circuit operation.		
C. The valve shall be voltage to flow proportional in the spinner forward position and shall stop all movement when the auger reverse is activated.		
D. Spreader quick-disconnect couplings shall be piped, starting from the left (driver's side): 1st "Spinner Pressure", 2nd "Spinner Return", 3rd "Auger Return" and last "Auger Pressure". Couplings shall be permanently labeled.		
E. Couplings shall be arranged so spreader hoses can be connected or disconnected with a gloved hand and spacing and provide full service ability.		
F. Spreader couplings shall be mounted into the pintle hook support bracket.		
G. Couplers shall be located so they do not interfere with the pintle hook or the spreader and dump body when raising the load.		
VALVES:		
A. All valves (directional, flow, load hold, relief, intensification and logic) shall be mounted in or on a sectional manifold stackable mobil design.		
B. All system logic shall be built into the valve assembly and provide a single cascading signal to the pump.		
C. Directional valves shall be sized to properly provide flow to the body and plow functions regardless of cylinder size.		
D. Each valve shall include replaceable 12-volt coils.		
E. Spreader proportional valves must both be capable of handling 21 gpm.		
F. Flow of both the spinner and auger valves shall be limited electrically as required.		
G. The plow lift and body lift functions shall have built-in load hold and pressure relief protection to provide safe and smooth operation.		
H. Flow spool stroke limiters shall be provided for plow and body function.		
I. All above valves shall be of the highest quality, latest design, assembled and tested prior to installation.		
J. All valves shall have manual overrides.		
K. The valves shall be arranged as follows: Hoist.....4-way with 500 psi down side work port relief valve Plow Lift.....4-way Plow Counterbalance Plow Angle.....4-way Auger.....4-way for reversing auger Spinner.....2-way		
MANIFOLD:		
A. The hydraulic manifold shall be an aluminum five station type. All system logic shall be included within the manifold.		
B. All porting shall be bottom SAE O-ring type and shall be sized for		

maximum flow.		
C. The manifold shall include a 3,000 psi glycerin filled pressure gauge and a port to monitor the spreader auger circuit.		
D. The manifold shall include a built-in adjustable relief valve capable of full flow from the hydraulic pump.		
E. The relief valve shall be set to require pressure as dictated by the pump.		
F. All functions shall include cascading sensing networks to allow the hydraulic system to instantly select the correct flow and pressure regardless of the number of functions in operation or type of pump.		
G. Complete flow and pressure testing shall be performed before installation.		
HYDRAULIC RESERVOIR/VALVE ENCLOSURE:		
A. Hydraulic reservoir/enclosure shall be of sufficient capacity to provide the required hydraulic fluid reserve and cooling capacities.		
B. Hydraulic reservoir shall be constructed of 7-gauge stainless steel and be internally baffled.		
C. Mounting system should allow for a minimum of at least 1" frame clearance.		
D. Reservoir/enclosure shall be mounted in a manner as to not transmit any truck torsional loads thru the tank.		
E. Enclosure lid shall be removable by one person without the use of tools and shall protect road and pressure washer spray.		
F. All valve fittings, hose ends, filter, filler breather, sending units and any electrical connections shall be protected by enclosure cover.		
G. The reservoir supplier shall provide all valve fittings (JIC connections) and plumb the return line from the valve to the filter.		
H. The directional control valve must be easily accessible from all six (6) sides without the use of tools.		
I. Hose exit and entrance must allow for components to be mounted adjacent to the enclosure.		
J. A 2" full flow brass ball valve shall be plumbed at the suction port of the tank and be safety wired in the "open" position.		
K. A low oil/high temp sending unit shall be mounted in the reservoir (wiring to the sensor on the reservoir shall be silicone sealed preventing water intrusion) and include a warning light mounted onto the dash.		
L. Reservoir/enclosure shall be mounted on the curbside of the vehicle with the hydraulic reservoir.		
M. Reservoir/enclosure shall be mounted in such a way as to eliminate undue vibration and piping restrictions.		
N. The plumbing within the reservoir/enclosure shall contain a minimum number of hoses.		
O. All components within the enclosure shall be mounted for serviceability.		
P. A weather-wear protected strip must be glued to the bottom but also top and sides (if needed in those other areas) to eliminate debris and moisture from entering the valve area.		
Q. The combination reservoir/enclosure shall be permanently marked in black 1" high letters " HYDRAULIC OIL ONLY ".		

R. Reservoir/enclosure shall contain clean ISO grade 32, rust and oxidation inhibited with anti-foaming agent hydraulic oil.		
S. A laminated schematic of <u>all</u> hydraulic valves and <u>all</u> electric circuits shall be attached to the inside of the valve enclosure cover.		
SPREADER CONTROL SYSTEM:		
A. Spreader control system shall be an open loop automatic ground speed oriented with manual control capability.		
B. Spreader shall function in the automatic mode directly relating vehicle speed to a variable preset amount of material. Regardless of the vehicle forward or reverse speed the preset pounds of material per linear mile shall not vary.		
C. Speed sensor shall be an inline frequency type.		
D. Electric control panel shall be capable of interpreting electronic speedometer signals.		
E. Blast mode shall function in the manual or auto mode.		
F. The system shall return to the manual or auto preset rate upon deactivation of the blast mode.		
G. Blast mode shall only affect the auger speed. The spinner-spread pattern shall not change in the blast mode.		
SPREAD CONTROL PANEL & HARNESS:		
A. The control panel shall be self-contained and sized for pedestal mounting (between driver and passenger seat).		
B. All switches shall be back-lit illuminated, permanently labeled, color-coded, and located in the panel for the safest possible operation.		
C. A momentary action switch shall be used for reversing the auger spreader (spinner shall stop when the auger is reversed).		
D. The spreader control shall include a minimum nine (9) position dial control for auger, a minimum nine (9) position dial for control spinner, blast button, and spreader auto/manual and on/off.		
E. The control shall contain adjustments for minimum and maximum of each auger and spinner circuit and complete PWM frequency tuning.		
F. The spreader circuit shall have a common connection.		
G. The spreader control shall operate in either a manual or automatic mode and function with a manual or electronic speedometer.		
H. The spreader blast function shall be externally adjustable from 0-10 seconds after the button is released (set for 10 seconds).		
I. All control circuits shall be fused and shall be suppressed.		
J. The wire harnesses shall be resistant to oil and abrasion.		
JOYSTICKS FOR PLOW & BODY FUNCTIONS:		
A. The operator's control panel shall incorporate two (2) separate electrical joysticks.		
B. The dual joysticks shall be remotely mounted to right side of the driver's seat in an accessible position to ensure easy operator control (exact location, height, and angle shall be determined by contacting the NJTA Inspector prior to installation).		
C. The joystick for plowing functions shall be of the rocker grip type. The		

joysticks for the body and plow functions shall both contain a dead man switch capable of de-energizing the body hydraulics upon handle release.		
ANNUNCIATOR PANEL:		
A. An annunciator panel shall be provided in the dash switch cluster.		
B. The panel shall have the following annunciators: <ul style="list-style-type: none"> • Low Salt-shall light when the spreader auger pressure switch indicates falling pressure in auger hydraulic circuit. • Oil Level-shall light when oil level in reservoir drops to an unsafe level. • Filter Fault-shall light when the hydraulic filter is clogged. • Bed Up-shall light when the dump body is in the raised position. 		
IDENTIFICATION, MANUALS, ETC: (In Paper Format):		
A. The following items below shall be supplied upon delivery for <u>each</u> vehicle in this bid package: <ul style="list-style-type: none"> • Complete and legible designation of each functional control component indicating function. • Hydraulic schematic and electrical wiring diagram (for hydraulic system) and maintenances requirements. • Complete parts list with necessary ordering information. Parts list shall include cross reference to schematic component numbers and manufacturer's numbers. • Complete written operation, maintenance, and troubleshooting of the hydraulic system. • Complete written calibration methods of spreader for automatic operations. 		

**SPECIFICATIONS: TS-2013
TAILGATE SPREADER**

BIDDER'S INSTRUCTIONS

IT SHALL BE THE BIDDER'S RESPONSIBILITY TO CAREFULLY EXAMINE EACH ITEM OF THE SPECIFICATION. BIDDERS MUST INDICATE WHETHER THEY COMPLY OR NON-COMPLY FOR EACH LINE ITEM IN THE SPECIFICATION. FAILURE TO PROVIDE A COMPLETED BID MAY CAUSE REJECTION OF BID. ALL NON-COMPLY RESPONSES AND/OR BIDDERS PROPOSED "APPROVED EQUIVALENTS" MUST BE FULLY EXPLAINED ON EXCEPTION FORM, NOTING SECTION AND ITEM. FAILURE TO EXPLAIN NON-COMPLY RESPONSES OR FAILURE TO SUPPLY DETAILED LITERATURE/BROCHURES ON THE BIDDERS PROPOSED "APPROVED EQUIVALENTS" MAY CAUSE REJECTION OF BID. WHERE "MINIMUM" IS SPECIFIED, BIDDERS MUST PROPOSE AT LEAST THE MINIMUM/MAXIMUM SIZES OR THE BID MAY BE REJECTED.

GENERAL:	COMPLY	
	YES	NO
A. Hydraulically operated, cab-controlled under-the-tailgate stainless steel type material spreader.		
B. Spreader shall not interfere in any manner with the normal operation and usage of the dump body, tailgate or pintle hook.		
C. Spreader shall have a single self-leveling spinner assembly that shall be mounted on the left side of the hopper.		
D. All bolts, pins and fasteners shall be high-quality stainless steel.		
E. The spreader shall be constructed of 201 stainless steel.		
SPREADER MOUNTING:		
A. The spreader shall be securely mounted to the sides of the dump body with quick-disconnect brackets and hanger bars.		
B. Hanger bars shall be attached to the sides of the dump body with clevis pinned connections (John Deere # 230044-WNL) or approved equivalent and bolted to the spreader by means of ½" carriage bolts and self-locking nuts.		
C. Drilled bolts shall not be acceptable.		
D. Hanger bar holes shall be drilled on center 20" apart from each other.		
E. Holes shall be drilled in each side of the spreader box to allow for pick up hooks to ease lifting and mounting of the spreader.		
F. Holes shall be approximately ¾" in diameter and shall be drilled in each side panel of the spreader equidistantly to facilitate level installation.		
G. Holes and bolts shall in no way interfere with the normal operation or compromise the structural integrity of the spreader.		
H. Mounting shall provide for universal and adaptability on all trucks listed in this bid package.		
HOPPER:		
A. The hopper shall be constructed with 7-gauge stainless steel end plates.		

B. The end plates shall be continuously welded to a 10-gauge stainless steel trough.		
C. The hopper shall have a 10-gauge stainless steel three-point hinged bottom.		
D. With bottom of hopper opened, the entire length of the auger shall be exposed for cleaning.		
E. The hinged bottom shall be held in place by two (2) heavy-duty cam locks with a lift handle.		
F. Hopper shall have an anti-flow cover over the discharge opening.		
G. The cover shall be removable without tools.		
H. Hopper shall have 10-gauge stainless steel cover/back plate.		
I. The plate shall be a one-piece hinged integral part of the hopper and shall be raised when spreading and lowered when dumping.		
J. Cover plate shall be capable of being locked in either the raised or lowered position by two (2) simple captivated latches.		
K. Auger drive mechanism shall be protected by a stainless cover, which shall be hinged at two (2) points and secured by a single latch.		
L. The discharge port shall be located at the extreme street side end of hopper.		
M. No open gap shall exist between front edge of spreader hopper and the rear dump body sill.		
N. If a gap exists between the trough lip and the dump body rear cross-member, a 'spill board' of about 3/16" x 2" steel shall be welded to the forward lip of the spreader to form a seal.		
O. Spreader shall fit the truck body <u>exactly</u> (no gaps) in order to prevent salt seepage in any area other than the discharge port.		
P. Tailgate shields shall be provided to prevent material spillage at the ends of the spreader.		
Q. A quick-connect hydraulic lock bar shall be provided for safety that forces the operator to disconnect, cutting off power to the auger before opening the stainless steel cover.		
AUGER:		
A. Auger shall be a single 6" nominal interrupted flight type auger.		
B. Flights shall be designed, spaced, angularity positioned, and graduated to provide an accurate and equalized amount of material to the spinner.		
C. Flights shall be 3/8" thick and patterned in three (3) zones.		
D. Flights shall be continuously welded to a 2" schedule 40 ATSM pipe.		
E. The pipe shall be supported by two (2) 1¼" steel shaft ends.		
F. Auger bearings shall be precision grade, self-aligning, sealed, and dust-proof with lube fittings.		
G. Power shall be provided by a direct-coupled hydraulic motor.		
H. The hydraulic motor shall mount directly to the auger pipe by non-corrosive sleeve and a ½" stainless steel Grade 5 bolts.		
I. Motor shall be mounted to the hopper end plate.		
J. Auger shall rotate in a counter-clockwise direction as viewed from the left		

side of the truck.		
K. Motor shall be reversible.		
SPINNER ASSEMBLY:		
A. Spinner assembly shall consist of an 18" diameter disc and six (6) cupped vanes with a 4-bolt pattern formed into a single polyurethane unit. This shall result in a flat trajectory and a uniform spreading pattern from 4' to 60'.		
B. Spinner assembly shall be mounted on the left side and be adjustable allowing for variable spreading patterns: left, center or right. This shall be accomplished by sliding the hinged frame sideways on the shaft so the point where the material hits the spinner disc is varied.		
C. A stainless steel spinner shield shall be provided and installed to prevent material from striking the truck.		
D. A spinner guard shall be provided and installed.		
E. Guard shall consist of dual rings, upper and lower positioned to overlie the outer periphery of the spinner.		
F. The upper ring shall have an expanded metal cover attached.		
G. Guard shall attach directly to the spinner assembly.		
H. Spinner shall be directly driven by a reversible high-torque hydraulic motor that shall be capable of spreading 60' within the motors rated maximum rpm.		
I. Spinner motor shall be capable of rotating the spinner disc at a minimum of 1,000 rpm's at the highest spinner setting. NO EXCEPTIONS		
J. Spinner assembly shall be mounted to spreader by means of a quick-disconnect, stainless steel rod, clips, 'T' bolts for rapid removal and shall be to the outer side or behind the spinner disc or extend beyond the side of the dump truck.		
K. All necessary brackets and mounting supports shall be furnished.		
L. The spinner standard leveling mechanism shall have 1/4" chain.		
M. The chain length shall be of appropriate length to keep the spinner level.		
N. The clearance of any spreader accessory to pavement with body raised to its maximum angle shall be 8".		
SPREADER LIGHT:		
A. One (1) Whelen # PFBS12 or approved equivalent, 12 diode, 1,000 lumens, 12V-1.70 amp stud/swivel mount white LED work light.		
B. The light assembly shall be positioned to illuminate the spreader operation.		
C. Wiring shall include "SO" two (2) conductor quick-disconnect weather pack connector and be impervious to weather and salt.		
D. Rocker type back-lit spreader light switch shall be dash-mounted and incorporated into the OEM wiring logic.		
E. Wires going into spinner light fixture shall be sealed with silicone.		
F. All auxiliary lighting shall be routed to a common cab switch panel incorporated into the OEM wiring logic.		
RATE OF APPLICATION:		
A. Spreader shall be capable of spreading salt at an operating range (rate)		

from 0-1,275 lbs. per mile divided between auger settings.		
SPREADER CONTROL:		
A. The operation of the spreader shall be controlled from the cab by the control console covered in the Central Hydraulic System Specifications: CHS-2013.		
B. Spreader shall be controlled by an open loop automatic ground speed oriented system.		
C. Automatic spreader control system shall allow dispensing requirements of 100 lbs. per lane mile to 425 lbs. per lane mile and up to three (3) lanes at one time, independent of vehicle road speed.		
D. No hydraulic lines shall enter cab of truck.		
SPREAD PATTERN:		
A. The spreader when operating at capacity shall be able to spread 60', i.e., 30' either side of spinner disc.		
B. The spread pattern and rate shall be controlled in any range from 0 to maximum.		
C. Spreader shall be capable by means of a quick-change adjustment device on spinner assembly to apportion material on the spinner and spread material evenly: <ul style="list-style-type: none"> • Spread all to the left of truck nothing behind or to the right of truck. • Spread to the left and behind truck, nothing to right of truck. • Spread to the right and behind truck, nothing to left of truck. 		
GREASE FITTINGS:		
A. Grease fittings shall be clearly indicated.		
B. If grease fittings are covered, directions by use of arrows or stenciled letters shall be provided.		
C. Extensions shall be provided when grease fittings are not readily accessible.		
MANUALS:		
A. One (1) of each of the following manuals shall be supplied with <u>each</u> spreader ordered in this bid package: <ul style="list-style-type: none"> • Parts • Hydraulic 		

**SPECIFICATIONS: RL
ROTATOR LIGHTS**

BIDDER'S INSTRUCTIONS

IT SHALL BE THE BIDDER'S RESPONSIBILITY TO CAREFULLY EXAMINE EACH ITEM OF THE SPECIFICATION. BIDDERS MUST INDICATE WHETHER THEY COMPLY OR NON-COMPLY FOR EACH LINE ITEM IN THE SPECIFICATION. FAILURE TO PROVIDE A COMPLETED BID MAY CAUSE REJECTION OF BID. ALL NON-COMPLY RESPONSES AND/OR BIDDERS PROPOSED "APPROVED EQUIVALENTS" MUST BE FULLY EXPLAINED ON EXCEPTION FORM, NOTING SECTION AND ITEM. FAILURE TO EXPLAIN NON-COMPLY RESPONSES OR FAILURE TO SUPPLY DETAILED LITERATURE/BROCHURES ON THE BIDDERS PROPOSED "APPROVED EQUIVALENTS" MAY CAUSE REJECTION OF BID. WHERE "MINIMUM" IS SPECIFIED, BIDDERS MUST PROPOSE AT LEAST THE MINIMUM/MAXIMUM SIZES OR THE BID MAY BE REJECTED.

ROTATOR LIGHTS-BEHIND THE CAB MOUNTING:	COMPLY	
	YES	NO
A. SAE J845 Class I Ecco Roto LED Beacon, Model # 7660A or approved equivalent rotating amber warning light.		
B. Lights (one on each side) shall be attached to the light bracket assembly via 2" o.d. square x .1875 stainless steel crossbar.		
C. Crossbar tubing shall be gusseted to channel uprights and provide an approximate 9½' wide, outside to outside revolving light setting but shall not be wider than the exterior mirrors.		
D. Bottom of lightbar shall be at least 1" higher than the cab roof.		
E. Light assembly shall have ¼" stainless steel mounting plates for each revolving light and all wiring to the revolving lights shall be routed <u>inside</u> tube assembly and through mounting base via type "SO" cord. (Wiring shall be hard-wired—plugs shall not be acceptable).		
F. All wiring shall be sized to sufficiently handle current demands of all lighting.		
G. All wiring shall be connected using two (2) conductor weather pack connectors.		
H. Lights shall be grounded to truck frame.		
I. Light assembly shall be securely attached to chassis frame rail via a minimum of two (2) 4" formed 10-gauge or thicker vertical channels with stainless steel braces, cross braces and supports adequate to prevent vibration and to handle severe service.		
J. Structure must be built to keep vibration at a minimum.		
K. Entire assembly shall use stainless steel fasteners throughout.		
L. Lights shall be wired to dash-mounted and incorporated into the OEM wiring logic within a load protected circuit.		

**SPECIFICATIONS: SPL-2013
SNOW PLOW LIGHTS**

BIDDER'S INSTRUCTIONS

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GENERAL:	COMPLY	
	YES	NO
A. Snow plow lights shall be Meyer Saber Light Model # 07223 or approved equivalent.		
B. Snow plow lights shall provide an alternate high/low beam light source when snow plow is attached.		
C. Mounting shall be shock-proof and vibration resistant.		
D. A three point, 2" x .250" aluminum bracket system shall be provided to accommodate high profile snow plows.		
E. Lights shall include halogen bulbs, wrap around park/turn lamps and be wired into cab mounted plow light/head light selector switch.		
F. When factory selector switch is provided it shall be used.		
G. Power supply for these additional lights shall be from the existing chassis high/low beam, park and turn signal circuits.		
H. Plow light housing shall be made of polycarbonate material.		
I. All wiring shall be routed to prevent damage (no splices) and be attached at firewall to a seven (7) terminal connection point for ease of hook up and troubleshooting.		
J. There shall be <u>no</u> splices (must have continuous feed from lights to firewall).		
K. Mounting shall be on truck fenders/hood.		
L. Original chassis high beam dash mounted indicator shall function when plow lights are in high beam mode.		
M. When factory switch is not present a bulb adapter plug kit and continuous harness shall be used and all terminations shall be inside of chassis cab. All wiring connections shall be weather tight.		

SPECIFICATIONS: SPH-2013
SNOW PLOW HITCH

BIDDER'S INSTRUCTIONS

IT SHALL BE THE BIDDER'S RESPONSIBILITY TO CAREFULLY EXAMINE EACH ITEM OF THE SPECIFICATION. BIDDERS MUST INDICATE WHETHER THEY COMPLY OR NON-COMPLY FOR EACH LINE ITEM IN THE SPECIFICATION. FAILURE TO PROVIDE A COMPLETED BID MAY CAUSE REJECTION OF BID. ALL NON-COMPLY RESPONSES AND/OR BIDDERS PROPOSED "APPROVED EQUIVALENTS" MUST BE FULLY EXPLAINED ON EXCEPTION FORM, NOTING SECTION AND ITEM. FAILURE TO EXPLAIN NON-COMPLY RESPONSES OR FAILURE TO SUPPLY DETAILED LITERATURE/BROCHURES ON THE BIDDERS PROPOSED "APPROVED EQUIVALENTS" MAY CAUSE REJECTION OF BID. WHERE "MINIMUM" IS SPECIFIED, BIDDERS MUST PROPOSE AT LEAST THE MINIMUM/MAXIMUM SIZES OR THE BID MAY BE REJECTED.

GENERAL:	COMPLY	
	YES	NO
A. Snowplow hitch shall be designed, engineered and built by a recognized manufacturer.		
B. Bidders must provide detailed specifications, and pictures describing exact unit that shall be provided.		
C. The snowplow hitch shall be designed to provide the minimum amount of front overhang.		
D. The low profile hitch design shall allow the cab hood to tilt fully forward a sufficient and safe amount to allow proper engine access.		
E. The heavy-duty front frame hitch shall be designed to transmit plowing forces directly to the truck frame side rails with custom built side plates to fit the chassis' specified.		
HITCH:		
A. Side plates shall be custom fitted steel plate of proper length, thickness, and construction for heavy-duty service and also provide adequate clearance for steering mechanism and spring suspension.		
B. Front section of hitch shall consist of the lifting frame, push plate, reinforcements, braces, and mounting brackets.		
C. Lifting frame vertical angles and top angle shall be ½" x 4" x 3" gusseted for additional strength.		
D. All lifting pins shall be 1" diameter.		
E. Ram support angle shall be gusseted ½" x 4" x 6" angle with ½" thick steel ram connection ears welded thereto and designed to accept a front bumper constructed of 8" @ 13.75 lb./ft. channel.		
F. Lower push plate main member shall be 10" @ 25 lb./ft. car channel, reinforced with a ¾" x 3" x 3" angle.		
G. Plow connecting ears shall have three (3) equally spaced height attaching		

holes fabricated from two (2) ¾" bars capable of adjusting pin ground height to approximately 15", 18" and 21" center of mounting holes.		
H. Plow connection pins shall be 1¼" diameter-two (2) shall be supplied with chain retainers.		
I. Entire front assembly, lift frame and push plate shall be further supported with four (4) braces of 4" x 4" x ½" wall tubing heavily gusseted.		
J. Specified truck bumper shall be cut and attached to either side of hitch side plates and reinforced as required using custom made bolt-on plates for easy replacement if damaged. Welding shall not be acceptable.		
K. Top of bumper and front of grille shall have a removable "Bustin" type plate deck mounted, full width. Bumper shall have four (4) 5/16" holes drilled for placement of license plates on driver's side.		
L. Plow hoist cylinder shall be of premium grade and shall be a double acting ram of not less than 4" bore x 10" stroke.		
M. Cylinder shall be capable of 14,000 lbs. thrust @ 2,000 psi and 16,000 lbs. of bursting pressure @ 2,000 psi.		
FOLDING LIFT BEAM:		
A. Folding lift beam shall consist of (2) ½" x 3" bars, secured by a ¼" thick cap and two (2) ½" x 3" ears assembled so the beam may fold.		
B. Beam shall be required to allow full tilting of the truck hood without any interference- NO EXCEPTIONS		
C. Lift arm shall fold out of the way when not in plowing mode.		
D. The pivot bolt shall be 1" diameter minimum Grade 8.		
E. In the folded position, the lift cylinder shall be positioned so if accidentally extended shall not cause damage to hitch or truck.		
F. A banjo chain holder shall be installed on the hitch.		
G. Chassis shall be equipped with a frame extension and bumper.		
H. Plow hitch shall be mounted as close to the grille as possible.		
I. If frame length must be reduced, vendor shall remove portion of frame in such a way as not to affect the integrity of frame strength.		
J. Bumper portion and plow hitch shall be primed and then painted with a black semi-gloss polyurethane finish.		
K. Two (2) plow hitch pins and retainer chains shall be supplied with hitch.		
L. Two (2) flexible 36" long x ¾" diameter orange bumper sight rods shall be mounted on each corner of bumper.		
M. Tow hooks shall be mounted on hitch using original equipment from chassis manufacturer.		
N. Design mounting shall be approved by the New Jersey Turnpike Authority.		

**SPECIFICATIONS: SP-2013
SNOWPLOW**

BIDDER'S INSTRUCTIONS

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GENERAL:	COMPLY	
	YES	NO
A. Snowplow shall be designed, engineered and built by a recognized manufacturer.		
B. Bidders must provide detailed specifications, and pictures describing exact unit that shall be provided.		
C. Snowplow shall be 11' wide hydraulic reversing.		
MOLDBOARD:		
A. Moldboard shall be 42" in height and 132" in length, formed in a "J" shaped blade with a radius of 20" and the last 12" a minimum of a 6" radius.		
B. Moldboard shall be constructed with a minimum of 7-gauge steel paneled for additional strength.		
C. Top shall be reinforced by a self-formed channel and the bottom with a one piece 4" x 4" x 3/8" structural angle.		
D. The cutting edge banking plate of 5/8" x 3" steel shall be welded and braced with a 1/2" x 2 1/2" gussets welded between each cutting edge bolt position. This structural triangle shall be constructed in order to have the cutting edge flush with the moldboard face to prevent snow build up on top of the cutting edge.		
E. A minimum of ten (10) full length vertical ribs shall reinforce the moldboard.		
F. The vertical rails shall be constructed of 1/2" x 3" formed steel continuously welded on both sides of edge to the moldboard sheet and secured at the top to the formed channel and to the structured angle at the bottom.		
G. Two (2) horizontal braces shall also reinforce the moldboard.		
H. The braces shall be constructed of 1/4" x 2" x 2" angle or 1/2" x 3" flat bar continuously welded on both sides to moldboard sheets.		

I. The lower rear cross angle shall be provided with a minimum of ten (10) brackets $\frac{3}{4}$ " thick welded on 88" hinge point centers for attachment to the table assembly at five (5) points with a minimum of 1" 72,000 lbs. tensile strength pins.		
CUTTING EDGE:		
A. The cutting edge shall be fabricated from abrasion resistant steel with a Brinell Hardness of 250 minimum.		
B. One (1) 60" long x 8" wide x 1" thick and one (1) 72" long x 8" wide x 1" thick cutting edges.		
C. Cutting edges shall be AASHO standard punched and be easily replaceable.		
D. All mounting hardware shall be Grade 8.		
TRIPPING MECHANISM:		
A. Minimum of five (5) heavy-duty extension springs shall be attached between the table and the moldboard.		
B. The spring materials shall be ASTM-A229 oil tempered $\frac{1}{2}$ " wire, 4 $\frac{1}{2}$ " OD x 24 active coils with the end hooks cold formed to 90° right angles to each other.		
C. The spring force at 30.5" shall be a minimum of 1,050 lbs. and allow 14" of stretch without deformation. Springs shall control the trip action so the plow will be held rigid when plowing but will automatically trip when coming in contact with any solid object and return automatically to the original plowing position when released.		
D. The trip springs shall be designed to have adjustable spring tension.		
E. Each spring shall be able to be adjusted individually by a threaded "J" hook or equivalent.		
F. A mechanical telescopic tripping post assembly constructed of a minimum of 1 $\frac{1}{4}$ " x 2" inside bar, $\frac{3}{4}$ " x 2 $\frac{1}{4}$ " outside bar and reinforced with $\frac{1}{4}$ " x 2" bars.		
G. The tripping post assembly shall be independent of the springs and must prevent the top of the moldboard from contacting the roof surface.		
H. Two (2) 1" diameter pins with a minimum tensile strength of 72,000 lbs. shall connect tripping post to the moldboard and table.		
TABLE:		
A. Table shall be a circular arc design.		
B. Table shall be constructed of solid $\frac{3}{4}$ " x 4" bars bent to a 29" outside radius with eleven (11) notches 1 $\frac{1}{4}$ " deep x 1 $\frac{1}{8}$ " wide at the bottom and 1 $\frac{1}{2}$ " wide at the outer edge.		
C. Notches shall be sheared cut.		
D. The circular arcs shall be formed from the flat portion of a fabricated angle with a curved bar $\frac{1}{2}$ " x 4" welded in a vertical position along the inner radius.		
E. The circular arc portion shall be welded at each end with an overlap to structural angles measuring 4" x 4" x $\frac{1}{2}$ " that continues the length of the semicircle and joins to the front angle measuring 4" x 4" x $\frac{1}{2}$ ".		
F. The joining of the semicircle to the front angle shall be reinforced on each		

side by ¼" thick triangular gussets with 4" turned up to form an angle.		
G. There shall be two (2) parallel angles measuring 4"x 4" x ½" connecting the semicircle to the front angle and providing multiple hole attachment means for the side plates of the carrying device.		
H. The front of the table shall be provided with a minimum of ten (10) brackets ¾" thick welded on 88" hinge point centers for attachment to the moldboard assembly at five (5) points with a minimum of 1" 72,000 lbs. tensile strength pins.		
LIFT CHAIN:		
A. The lift chain assembly shall include a zinc plated 7/16" proof coil chain, repair link, two (2) ½" anchor shackles and a 7/16" grab hook clevis.		
B. There shall be two (2) tabs welded on the table for attachment of the lift chain.		
PUSH FRAME:		
A. The push frame shall be constructed of two (2) 4" @ 13.8 lb. ship channels with bracing and be in the form of an "A".		
B. The top and bottom of the push frame shall be ½" triangular shaped plate.		
C. Welded to the front of these triangular plates shall be a pair of ¾" x 3" steel brackets and between them a curved socket member shall be provided to relieve the pivot pin of thrust stress.		
D. The attachment pin at this point shall be a minimum of 1¼" diameter axle quality steel that shall engage with corresponding ears on the front angle of the semicircular frame.		
E. At the center of this box construction of plates and channels in the line of forward rotation shall be an assembly welded to form a continuous thrust beam.		
F. The first forward member shall be a minimum of 4" @ 7.7 lb. "I" Bear bearing against the push ears in the front and extending to the rear to butt against a tubular telescopic member extending to the rear and attach to a cross channel with a 1" bolt.		
G. Telescoping onto the tubular member shall be a sliding yoke having two (2) pair of ears at the front connecting to the hydraulic reversing cylinders to the rear of the sliding yoke.		
H. A latch part shall be incorporated which continues further to the rear and presses against a heavy-duty latch spring measuring 5-7/16" O.D. x ¾" diameter spring wire with 9" of free travel.		
I. The spring shall be made of AISI 5160 hot rolled spring steel and shall be heat treated.		
J. Spring shall be closed and ground.		
K. The latch shall seat against a circular plate welded to the rear cross channel.		
L. Lubrication fittings shall be provided to allow ease of movement of slide assembly which telescopes on the tubular member.		
M. A guide plate shall be welded to the rear of the top triangular plate to control the position of the yoke assembly and latch part.		
N. The guide plate shall extend forward to be in a position above the circular		

arc angle to keep it engaged with the push frame allowing and limiting the oscillation of the semicircle in relation to the push frame.		
O. The two (2) rear channels of the push frame shall be provided with a heavy-duty 1" thick cast steel adjustable ear for attachment of the push frame to the travel hitch with a ¼" diameter bolt.		
P. Ear spacing shall be 21". NO EXCEPTIONS		
HYDRAULIC REVERSING CYLINDERS:		
A. The hydraulic reversing mechanism shall consist of two (2) hydraulic cylinders with a minimum of 2½" diameter and 10" stroke.		
B. The cylinder piston rods shall be treated with a nitro steel process to assist in preventing corrosion.		
C. Chrome piston rods shall not be acceptable.		
D. Cylinders shall have ears on each end.		
E. The ears on the outer cylinder housing shall engage with the ears on the yoke in the push frame and the ears on the piston rods shall attach to corresponding ears on the front cross angle on the semicircle table.		
F. Hydraulic cylinders shall be positioned to unlatch the semicircle and angle the moldboard to the desired plowing position.		
G. The latching mechanism shall operate automatically and monitor the moldboard in any eleven (11) positions from 35° right or left in 7° increments.		
H. High pressure hydraulic hose connections shall be made to each of the two (2) cylinders and extend to the rear terminating in male and female quick-disconnect couplings. This shall allow hoses to be connected during storage.		
I. During operation the hoses shall connect to the corresponding connections on the vehicle.		
MUSHROOM ASSEMBLY:		
A. The skid shoe assemblies shall be hand adjustable, enclosed and fully lubricated with replaceable cast iron shoes, "Mushroom" shaped with a minimum diameter of 11" and 2½" thick.		
B. The design shall include an anti-flip top.		
C. The shoe housing shall be constructed of 3" square tubing x 12" long and the shoe post shall be constructed of 2½" square tubing x 11" long.		
D. Adjustment shall be made by a threaded 1¼" diameter screw operated by a hand crank with rotating knob, which shall be self-locking and operate without the use of any tools.		
E. Adjusting screw shall be fully enclosed.		
LEVEL-LIFT ASSEMBLY:		
A. The level-lift assembly shall provide an automatic mechanically activated mechanical control, which shall hold the raised plow moldboard an equal distance from the ground to the bottom of the cutting edge.		
B. The level-lift mechanism shall hold an equal elevation regardless of height raised above the road surface and regardless of moldboard plowing angle.		
C. The moldboard plowing angle shall be able to be changed to any desired position, maintaining equal elevation without first lowering plow, changing		

plowing angle and then re-lifting.		
PLOW MARKERS:		
A. Snowplow shall be equipped with two (2) markers constructed of high-density polyethylene safety orange color measuring 1¼" o.d. x 36" long.		
B. Plow markers shall be mounted on top of each end corner of moldboard.		
RUBBER BAFFLE:		
A. Snow plow shall be equipped with a ½" thick x 12" wide x 11' long rubber belting baffle.		
B. The baffle shall be bolted to top of moldboard with a ¼" x 2" x 11' foot steel keeper bar.		
MOLDBOARD SHOE:		
A. Snow plow shall be equipped with two (2) moldboard shoes.		
B. Moldboard shoes shall be constructed of cast steel and have a bearing-wear surface of at least 75 square inches each.		
C. Moldboard shoes shall be attached directly behind the cutting edge and be designed to wear evenly with the 8" cutting edge.		
D. Moldboard shoes shall have two (2) 11/16" diameter bolt holes spaced on 12" centers for mounting to the snow plow.		
CURB BUMPER:		
A. Snow plow shall be equipped with two (2) curb shoes, one right hand and one left hand.		
B. Curb shoes shall be made of A36 steel, ⅝" thick x 6" wide x 14" long.		
C. Curb shoes shall be designed to wrap around the edge of the snow plow moldboard at the cutting edge.		
D. Each curb shoe shall have two (2) 11/16" square bolt holes for mounting.		
E. Curb shoes shall be installed on top of snow plow cutting blade.		
F. The center of the first bolt hole shall be 1½" from flat square end of shoe.		
G. The center of the second bolt hole shall be 3" from the center of the first bolt hole.		
H. Bolt holes shall be 1½" down from the top edge of the curb shoe.		
WELDING:		
A. All welds shall be continuous and performed in the manufacturing of the snow plow shall be by certified welders.		
PAINT:		
A. All steel parts shall have the mill scale and oil removed by means of a high-pressure chemical cleaner prior to painting.		
B. These surfaces shall be primed with a zinc rich rust preventive primer.		
C. All aluminum and stainless steel shall be left its natural color.		
D. Paint shall be DuPont Dulux Omaha Orange Enamel #93-082 or approved equivalent.		
E. Paint shall be applied in a two-step process. Orange base coat and additional polyurethane overcoat.		
MANUALS:		
A. One (1) complete set of service, parts, hydraulic diagrams and operator's manuals shall be supplied with each snowplow.		

SPECIFICATIONS: 7PTC

7-POLE TRAILER CONNECTORS ON TRUCKS AND TRAILERS

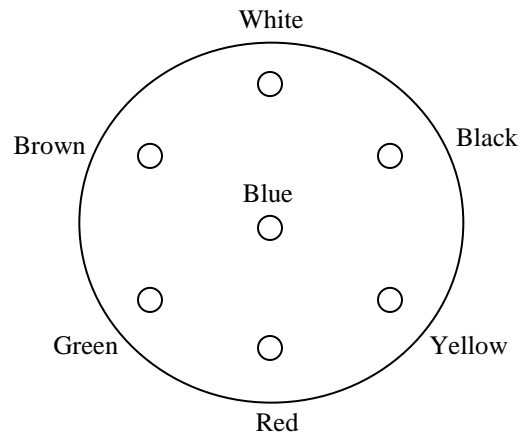
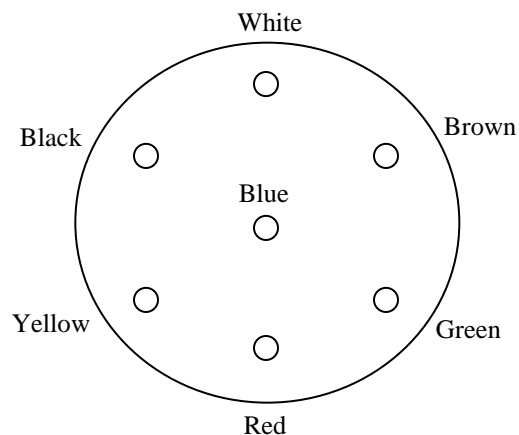
CONNECTOR MARKING COLOR

APPLICATION

WHITE.....	GROUND
BLACK.....	TAIL LIGHT
BROWN.....	TAIL LIGHT
YELLOW.....	LEFT TURN SIGNAL
GREEN.....	RIGHT TURN SIGNAL
RED.....	ELECTRIC BRAKE
BLUE.....	12-VOLT BATTERY- WITH 30-AMP AUTOMATIC BIMETAL THERMAL RESET CIRCUIT PROTECTION.

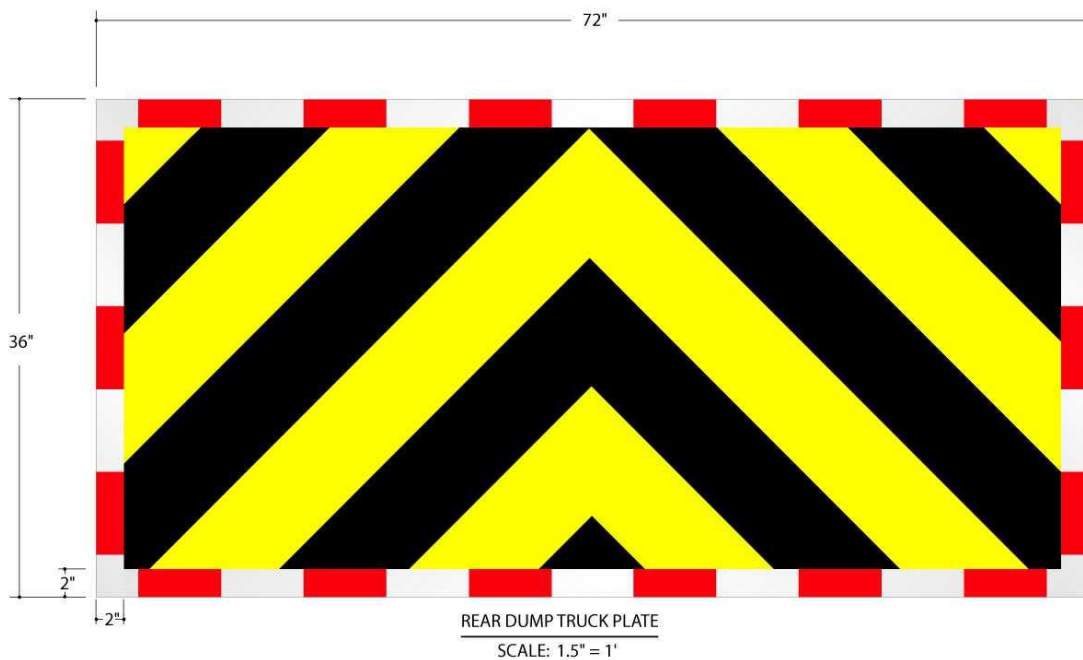
SOCKET MARKINGS

PLUG MARKINGS



SPECIFICATIONS: STRIPE PLATE

1. All stripes will be six (6) inches wide, forty-five (45) degrees from vertical. The yellow stripes shall be Diamond Grade Fluorescent VIP Reflective Sheeting-3981, pressure sensitive. The black stripes shall be Scotchcal 3650-12, pressure sensitive.
2. Diamond Grade Conspicuity Marking 981-326, Red 6", White 6" both 2" high surrounding the top, bottom and both sides of the stripes, pressure sensitive.
3. The entire rear of the truck body shall be fully covered without covering any lights or accessories. Exact size shall be determined by contacting the NJTA Inspector prior to and mounting.
4. A striping plate of $\frac{1}{8}$ " aluminum shall be used (unless otherwise specified) that shall be striped and riveted to tailgate. (Dimensions below are approximate).
5. The entire stripe plate assembly top edge shall be covered by a 1" x 1" x $\frac{1}{4}$ " stainless steel angle welded horizontally at 90° to the tailgate with a downward facing outer angle edge in an effort to shed loading material away from the top edge of the stripe plate assembly.
6. All materials shall be manufactured by and applied as approved by the Minnesota Mining Company (3M Company).



SERVICE PARTS IDENTIFICATION FORM-CHASSIS

List All Applicable Preventative Maintenance Items:

Private label part number identification shall not be acceptable. A common automotive industry recognizable identification capable of cross referencing with manufactures such as Fram, Hastings, Purolator, Wix, etc. shall only be accepted.

	Required Amount	OEM Part #	After Market Part #
Engine Group:			
Primary Oil Filter			
Secondary Oil Filter			
Air Filter			
Other			
Primary Fuel Filter			
Secondary Fuel Filter			
Water/Fuel Separator			
Coolant Filter			
Other			
Ignition Group:			
Spark Plug			
Spark Plug Wires			
Other			
Other			
Emissions Group:			
PCV Valve			
Other			
Drive Train Group:			
Transmission Primary Filter			
Transmission Secondary Filter			
Axle Housing Breather			
Other			
Brake Group:			
Compressor Intake Filter			
Air Dryer Desiccant			
Power Take Off Group:			
Hydraulic Filter			
Breather Filter			
Other			
Miscellaneous:			
Left Windshield Wiper			
Right Windshield Wiper			
Rear Windshield Wiper			
Cab Ventilation Filter			

FAILURE TO COMPLETE ALL AREAS MAY RESULT IN REJECTION OF BID

UNIT INFORMATION FORM

(Must be submitted by vendor with bid documents)

I. TRUCK CHASSIS:

YEAR:_____ MAKE:_____ MODEL:_____

ENGINE MAKE:_____

MODEL:_____ CID:_____ HP:_____ @ _____ RPM

ALTERNATOR MAKE:_____ MODEL:_____

AMPS:_____

BATTERY VOLTS/AMPS:_____

C.C.A. @ O° F:_____

TRANSMISSION MAKE:_____

MODEL:_____

BACK-UP ALARM MAKE:_____

SERVICING AGENCY:_____

LOCATED AT:_____

TELEPHONE #:_____

CONTACT:_____

Name & Title

II. DUMP BODY:

DESCRIPTION:_____

YEAR:_____ MAKE:_____ MODEL:_____

BODY VIBRATOR MAKE _____ MODEL _____

INSTALLER:_____

SERVICING AGENCY:_____

LOCATED AT:_____

TELEPHONE #:_____

CONTACT:_____

Name & Title

III. HOIST:

YEAR:_____MAKE:_____MODEL: _____

CAPACITY:_____

INSTALLER:_____

SERVICING AGENCY:_____

LOCATED AT:_____

TELEPHONE #:_____

CONTACT:_____

Name & Title

IV. HYDRAULIC SYSTEM:

MAKE:_____

HYDRAULIC PUMP
MODEL:_____

INSTALLER:_____

SERVICING AGENCY:_____

LOCATED AT:_____

TELEPHONE #:_____

CONTACT:_____

Name & Title

V. TAILGATE SPREADER:

YEAR: _____ MAKE: _____ MODEL: _____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____

Name & Title

VI. ROTATOR LIGHTS:

YEAR: _____ MAKE: _____ MODEL: _____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____

Name & Title

VII. SNOW PLOW LIGHTS:

YEAR: _____ MAKE: _____ MODEL: _____

SERVICING AGENCY: _____

LOCATED AT: _____

TELEPHONE #: _____

CONTACT: _____

Name & Title

VIII. SNOW PLOW:

MAKE:_____ MODEL:_____

INSTALLER:_____

SERVICING AGENCY:_____

LOCATED AT:_____

TELEPHONE #:_____

CONTACT:_____

Name & Title

IX. TARP:

DESCRIPTION:_____

YEAR:_____ MAKE:_____ MODEL:_____

INSTALLER:_____

LOCATED AT:_____

SERVICING AGENCY:_____

TELEPHONE #:_____

CONTACT:_____

Name & Title

[illegible]

Date _____